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Loneliness among Deaf and Hard of Hearing People

by

Jonathan Chapman ©

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ABSTRACT

Loneliness can negatively affect people emotionally and socially. Persons who are deaf or hard of hearing (D/HH) may well be more vulnerable to loneliness due to their unique communication issues. Literature has been limited regarding this topic. This study examined the experiences of loneliness and related emotional and adaptive states among D/HH secondary students based on their schooling background (Mainstream vs Institutional vs Hearing Control) and gender. General information questionnaires and formal scales (e.g., the UCLA Loneliness Scale, PNDLS, BDI-II, and BASC) were distributed to 28 mainstreamed D/HH, 27 institutional D/HH, and 31 hearing students. Results revealed that both mainstreamed and institutional students had higher loneliness scores than hearing students. Moreover, institutional students had higher depression scores than mainstream students. Further analysis indicated that scores on loneliness and related emotions by mainstreamed males and institutional females were more significant than their counterparts. Each model based on the existing theories on loneliness (Weiss, 1973; Peplau & Perlman, 1982; Andersson, 1986) did not fully explain the results. However, experienced loneliness in this study seemed more likely to be internal or emotional loneliness than external or social loneliness. Overall, schooling background, though significant, was not sufficient to predict loneliness due to the complex results. More studies are needed to investigate the relationship between the complex experiences of D/HH people (e.g., family history, diverse schooling backgrounds, sense of identity, and communication skills) and the dynamics of loneliness and relevant emotional states of D/HH people. Overall, more effective intervention strategies are needed to help support D/HH students, who suffer the negative impact of loneliness.

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CHAPTER 1

Introduction

Loneliness, a common but profound human experience, can have a negative impact involving intense feelings of sadness, alienation, and angst. Physical isolation or aloneness can but does not always accompany feelings of loneliness. A person can be physically, socially or psychologically alone. However, loneliness is not determined by the presence or level of aloneness, but how a person responds to this isolation. According to Davies (1995), perceived isolation rather than actual isolation seems to have more impact on a person's sense of loneliness (Davies, 1995). For example, a person who moves to a new city while not knowing anyone, may experience isolation, but not feel the negative feelings related to loneliness. On the other hand, a child who is apart from peers at school may suffer consequences of loneliness such as estrangement or alienation.

People who are disabled frequently experience isolation, physically and/or psychologically, and hence are more at risk of feeling lonely than the general population. Each disability affects people in different ways. For instance, blind people are cut off the physical world beyond what they can hear or touch; however, they can communicate verbally. On the other hand, people with hearing loss find their communication severely affected. Shanny Mow (1973) described his experience as a deaf child in a hearing family:

> You never forget that frightening experience ... You were left out of dinner table conversation. It is called mental isolation. While everyone is talking or laughing, you are as far away as a lone Arab on a desert that stretches along every horizon. Everyone and everything is a mirage; you see them but you cannot touch or become a part of them. You suffocate inside, but you cannot tell anyone this

> horrible feeling. You do not know how to. You get the impression nobody understands or cares. You have no one to share your childish enthusiasm and curiosity, no sympathetic listener who can give meaning to your world and the desert around you. (p. 24)

It is apparent that Mow's family did not understand how to meet his needs and include him as a fully-functioning member of the family. This experience is very common for deaf children in hearing families.

Language and social development are altered for both deaf and hard of hearing people (Scheetz, 2001). The lack of appropriate communication leads to social isolation, and can result in high degrees of loneliness. People who can hear normally can understand the language of those around them, and use this to better comprehend events within the environment. However, people, deaf from birth, do not have the same opportunity to acquire language as do the speaking majority. This enhanced level of isolation may intensify feelings of loneliness. This can be remedied somewhat by adjusting to an appropriate communication system between the deaf person and his community (e.g., family, peers, school). For example, the deaf person's family may learn signed language and enroll him in a school where signed language is the primary mode of communication. As a result, this deaf person's language and personal growth might be enhanced to near normal levels. However, in reality, the language (especially English) being developed to near normal levels rarely occurs due to complex factors such as parental communication, lack of access to proper education, and societal perspectives on deafness (Lane, 1992; Scheetz, 2001).

The typical deaf person's reading grade level plateaus at the third to fourth-grade reading level. Approximately 10 percent of deaf persons reach the eighth-grade reading level and above (Moores, 1987; Paul & Quigley, 1994; Trybus & Karchmer, 1977). However, reading levels have increased in recent years, but are still significantly low compared to that of hearing students (Scheetz, 2001). Recent research conducted by the Canadian Association of the Deaf (CAD) showed the functional illiteracy rate in the Deaf community to be 65 percent (Roots & Kerr, 1998). Given that lack of basic skills such as literacy can contribute to increased social isolation and related problems (Comings, Reder, & Sum, 2001), it is likely that at least some deaf or hard of hearing people without such basic skills would experience such negative consequences.

While deaf and hard of hearing people may experience the effects of isolation and loneliness, certain social settings may also contribute. An example is that of a deaf person who is mainstreamed into a regular high school setting with no support services (e.g., interpreting, captioning, or notetaking), and lacking access to deaf friends. This person would likely feel like an outsider among other teens who can communicate with each other much more easily, increasing the risk of becoming more isolated and lonely. Deaf people in residential schools still can experience loneliness, despite open access to equal communication with peers. It should be noted that people who are hard of hearing may have different experiences than people who are deaf due to various communication and social experiences. Even among deaf people, backgrounds are very diverse according to family acceptance, mode of communication, community involvement, ease of relationship, personality style and educational/vocational opportunities (Scheetz, 2001).

There are significant consequences due to the experienced loneliness of many deaf and hard of hearing people. Studies exploring this phenomenon are essential in order to identify factors that may contribute to increased loneliness among deaf and hard of hearing people. Furthermore, better understanding of these factors can assist development of strategies to make life more inclusive and enhancing those people affected.

The purpose of this study is to examine levels of experienced loneliness and emotional states related to it (e.g., depression) among deaf and hard of hearing people from different school backgrounds. Differences in reported loneliness and related emotional states between students who are mainstreamed in regular school settings and those who attend institutional schools for Deaf students will be investigated. Furthermore, the reported experiences of these groups will be compared with those of hearing students at regular school settings. The findings may help shed further insight into the possible relationship between loneliness and differing educational backgrounds among deaf and hard of hearing students.

The following page includes a glossary of the key words related to loneliness and deafness.

Glossary

ASL: American Sign Language. Most common native signed language used by those in the Deaf community in Canada and USA. Distinct language from English.

deaf: Partial or total lack of ability to hear. Usually refers to profound deafness (loss of at least 90 decibels), according to medical model.

Deaf: Term to define people who self-identify with Deaf Culture in which members share a common language (e.g., ASL) and values. Deaf people tend to see their deafness as a difference (Social Model) not as a deficiency (Medical Model).

hard-of-hearing: Partial hearing loss that can range from mild (15-40 decibels) to moderate (41-55 decibels) to moderate-severe (56-70 decibels) to severe (71-89 decibels).

institutional schooling: Type of schooling when deaf students attend segregated schools designated for deaf people. Also known as residential schooling as many students stay at dormitories at their respective schools. This includes day program students who commute on weekdays. Typical institutional school uses signed language (e.g., ASL) as primary mode of instruction and fosters Deaf Culture experiences. While the term "institutional" tends to have a negative connotation in the English-speaking community, the Deaf Community tends to regard this term more positively. Among deaf people, it refers to a particular schooling background where they are in separate schools that have full access to socializing and communicating in signed language. Those who feel positively about being part of the Deaf Culture tend to take pride in experiencing institutional schooling.

isolation: State of environmental separation from other people. This may or may not precede experiences of loneliness.

loneliness: State of sadness or dejection at the awareness of being lonely, which in turn is an emotional state that stems from perceiving the self as abandoned or forsaken. Physical isolation is not necessary for a person to experience loneliness.

mainstream schooling: Type of schooling when deaf or hard of hearing students attend regular schools. In this thesis, different aspects of mainstreaming are covered including: i) being the only deaf/hard of hearing student at school; ii) being among a few deaf/hard of hearing students; and, iii) being part of a congregated program where a group of deaf/hard of hearing students are taught in special classes within a regular school (some may partake in regular classes as well). Types of services can vary (e.g., audio-visual, interpreting, etc.).

manualism: Term used to describe different types of signed language systems that are structured to represent the English language (e.g., signs arranged in English order and/or modified to represent certain sounds or parts of a word). Types include Signed English (SE), Seeing Essential English (SEE1), Signing Exact English (SEE2), Pidgen Signed English (PSE), etc. Primarily used by some educators and some hearing families for teaching more English skills to deaf or hard of hearing children. Another term for manualism is Manually Coded English (MCE).

oralism: Educational philosophy that stresses learning via oral skills for deaf or hard of hearing children. Can incorporate audio-visual training, speech training, and lip-reading. Advocates tend to discourage use of signed language.

CHAPTER 2

Literature Review

Loneliness and Isolation in the General Population

This literature review covers the phenomenon of loneliness and isolation in the general population as well as the deaf and hard of hearing population, and the known effects of this phenomenon on the latter group. Extensive research has been conducted on loneliness in the past few decades. Review of past research will cover the impact of loneliness and isolation on the general population, including the negative psychological and social experiences that are related to loneliness as well as societal consequences. The relationship between loneliness and factors such as gender and personality types will be reviewed. Models have been devised to explain the dynamics behind loneliness, and this report will focus on the three major theories of loneliness. This section addresses loneliness and the general population, which will tie into the next section discussing loneliness and the deaf and hard of hearing population.

Previous Research and Studies on Loneliness

Introduction to loneliness. One of the most prevalent but under-researched and avoided phenomena in society is that of loneliness. Paterson, co-author of "When You Stand Alone" (Paterson, Blashko, & Janzen, 1991), indicated that he authored a few best sellers but this book, which focuses on loneliness and its effect on society, had very low sales (personal conversation, 2001). This seems to reflect a society that does not wish to recognize a common but painful experience for many people. However, researchers have urged their colleagues to undertake more studies on loneliness to understand both its detrimental and beneficial effects (e.g., Peplau & Perlman, 1982; Davies, 1995). Some of the negative factors associated with loneliness include depression (Lau & Kong, 1999; Anderson & Arnoult, 1985; Young, 1982), suicide ideation (Joiner & Rudd, 1996; Diamont & Windholz, 1981), anxiety (Lau & Kong, 1999; Russel, Peplau, & Cutrona, 1980), neuroticism (Stephan, Faeth & Lamm, 1988), adolescent maladjustments (Brennan & Auslander, 1979), aggression (Qualter & Munn, 2002; Check, Perlman, & Malamuth, 1985), interpersonal hostility (Lau & Kong, 1999), drug and alcohol abuse (McWhirter, 1990), poor coping skills (McWhirter, 1990), and severe psychological dysfunctions that require professional intervention (McWhirter, Besett-Alesch, Horibata, & Gat, 2002; Rook, 1984). Stress that occurs due to being in neglectful families and without healthy social supports has been found to be correlated with intense feelings of loneliness (Gaudin, Jr., Polansky, Kilpatrick, & Shilton, 1993). Rokach (2004) suggested that the dangers of unresolved loneliness can include harm to one's ability to love and be intimate, disruption of creativity, possible negative influences on a person's life directions (e.g., more impulsive and poor judgements), desensitization to others and self, and decreased quality of life. Lower thresholds of pain, low levels of intimacy, low self-reliance, and poor social skills are associated with loneliness (Davies, 1995). The aforementioned maladaptive behaviours correlated with loneliness vary among individuals as some may internalize the pain that stems from loneliness, while others may externalize their negative feelings (Qualter & Munn, 2002). Asher and Paquette (2003) suggest that loneliness does not have to be maladaptive; however, if people experience chronic loneliness, psychological and physiological ill effects can result.

Loneliness can have a significant impact on a person's physical well-being as well as his or her psychological state of being. There is a strong correlation between loneliness and increased vulnerability to health problems (Jones, Rose & Russell, 1990). As Asher and Paquette (2003) previously mentioned, loneliness experienced on a chronic basis over a long period of time can lead to medical problems. Loneliness has been found to lead to sleep disturbance, anxiety, and poor eating habits, which in turn contributes to altered physioneurochemical processes in the body that breaks down the immune system (Barlow & Durand, 1995). Lonely young adults were found to have higher basal total peripheral resistance (TPR) and lower cardiac output (CO) than did nonlonely people (Hawkley, Burleson, Berntson, & Cacioppo, 2003). The aforementioned level of TPR and CO have also been correlated with passive coping tasks and chronic stress, which in turn can be detrimental to a person's long-term health. In short, chronic loneliness can have serious consequences, mentally and physically, for individuals, especially if they have experienced it for most of their lives.

Age and loneliness. The onset of loneliness can occur in young children, since withdrawn children report more loneliness, anxiety and social dissatisfaction at school than sociable, average, or assertive peers (Christie, 1999). Specifically, children who have no friends reported much higher levels of loneliness than those who had friends (Parker & Asher, 1993). Interestingly, there seems to be no significant correlation between experienced loneliness and the number of friends (providing that the person has at least one friend). However, it is necessary to have enduring friendships with at least one person. While the number of friends may not directly correlate with level of loneliness, the quality of friendships do correlate highly with reported loneliness (Nangle, Erdley, Newman, Mason, & Carpenter, 2003; Hoza, Bukowski, & Beery, 2000). The quality of friendship can be defined by perceived opportunities in relationships for play, companionship, personal exchange, and intimate disclosure (Parker & Asher, 1993). The lower the quality of friendship, the more prone the child will be to experiencing loneliness. Nangle et al. (2003) noted that increased size and relative quality of friendship, especially if with popular individuals, can serve as buffers against loneliness and social dissatisfaction as well as facilitate success in social adjustments. This applies to adolescents as well; however, the consequences of loneliness and depression can lead to more serious consequences for them compared to younger children. For example, adolescents who experience loneliness likely have low self-esteem and/or depression, and are at risk for poor school performance, dropping out of school, drug/alcohol use, poor coping or adjustment skills, and/or alienation from others (McWhirter et al., 2002).

Loneliness definitely does span across people's lives, but it seems that the older a person (except for senior citizens) becomes the better equipped he or she is at coping with loneliness and being proactive instead of passive or reactive when faced with isolation (Rokach, 2001). Interestingly, the type of culture a person lives in can have an impact on experienced loneliness. People from collective cultures (e.g. Czech, Aboriginals), which value highly more relatedness, conformity, and harmony in thought, feeling, and action, have been reported to have lower loneliness scores across the age group span than those from individualistic cultures such as in Canada (Rokach & Bauer, 2004; Fogarty & White, 1994). It is not surprising that people who live in cultures that place high emphasis on individual achievement, self-sufficiency, difference from others, and discretion in expressing some emotions can be more vulnerable to feelings of loneliness, especially those in their younger and senior years.

Personality and gender types. Certain personality types seem to be related to loneliness. Eysenck (1970) devised a personality model with three major factors: Extraversion, Neuroticism, and Psychoticism. Social loneliness has been found to be related to Introversion (on the very low end of Extraversion), meaning that the more introverted a person was, the more likely she would be lonely; whereas emotional loneliness has been found to be highly correlated with Neuroticism (Saklofske, Yackulic, & Kelly, 1986; Saklofske & Yackulic, 1989).

Issues of control are also another significant mediating personality factor for loneliness. The greater the discomfort and the lower the self-reported likelihood of responding in social situations, the higher the self-reported loneliness and the lower the perceived control over quality of social life (Gambrill, Florian, & Splaver, 1986). Furthermore, loneliness has been associated with a low desire for control and a belief that one does not have control (Solano, 1987). Thus, a person with an external locus of control ought to be more prone to loneliness than someone who has an internal locus of control. However, Mikulincer and Segal (1991) found that people with both loci of control do experience loneliness. Those with internal locus of control feel lonelier if they have higher desires for intimacy among persons. This could be akin to existential loneliness due to perceived lack of quality in relationships. On the other hand, those who had a low desire for intimacy and had external loci of control tended to feel high degrees of loneliness. One possible explanation for this is the decline of motivation to pursue intimate ties with others if there is a perceived sense of lack of control in interpersonal relationships. Depressed people tend to attribute success to external factors while attributing failure to internal factors (Anderson, Horowitz, & French, 1983). This can possibly elevate experiences of loneliness by lingering negative feelings resulting from attributing failure to self, while not internalizing the positive feelings from success long enough to bolster a person's self-esteem.

Regarding gender differences, research findings have been mixed. Studies that used scales such as the UCLA Loneliness Scale have found no significant gender differences (Berg & Peplau, 1982; Jones, Freeman, & Goswick, 1981; Jackson, Soderlind, & Weiss, 2000). In contrast, some studies that also used scales including the UCLA Loneliness Scale have shown that men tend to be lonelier than women (Solano, 1980; Russell, Peplau, & Fergeson, 1978; Koenig, Isaacs, & Schwartz, 1994). Despite this contradictory body of research, there is evidence that males and females tend to experience and express their loneliness differently. For instance, males tend to be more open about their loneliness and react more negatively due to attributing it to their personal failure rather than to external causes (Schultz, Jr., & Moore, 1986). Males tend to report more loneliness while women tend to report more depression (Wiseman, Guttfreund, & Lurie, 1995). Clinton and Anderson (1999) revealed that reported social loneliness tends to be equal between the genders, but that males and females experience emotional loneliness differently. Males and females associate emotional loneliness with lack of reciprocated best friends and lack of perceived control, respectively. The lack of equal reciprocity in best friendships between men was highly associated with loneliness (Buunk & Prins, 1998). Overall, women have been found to have stronger coping skills in relationship to loneliness compared to men (Rokach, 2001).

Dimensions of loneliness. Most researchers agree that loneliness is associated with anxiety, fear, and isolation (Davies, 1995). However, researchers have had a difficult time establishing standard psychological parameters for loneliness. According to France, McDowell, and Knowles (1984), loneliness has 5 dimensions: interpersonal, cultural, cosmic, social, and psychological. Feelings associated with loneliness include fear, anxiety, alienation, isolation, hopelessness, and/or emptiness. Peplau and Perlman (1982), in turn, describe eight basic explanatory models of loneliness: i) the psychodynamic, in which loneliness is considered pathological and caused by early influences (Fromm-Reichmann, 1959); ii) the phenomenological, in which loneliness is a result of poor adjustment and not being true to one's self (Sadler, 1978); iii) the existential, in which loneliness can be positive, is people accepting and working through loneliness and becoming wiser and stronger (Moustakas, 1961); iv) the sociological, in which loneliness is largely caused by social forces (Fromm-Reichmann, 1959); v) the interactionist view, in which a combination of personal and environmental factors lead to loneliness (Weiss, 1973); vi) the cognitive approach where loneliness is attributed to a discrepancy between a person's expectation and how socially satisfied he or she is (Peplau & Perlman, 1982); vii) the privacy approach, in which loneliness is more related to the quality rather than the quantity of enriching relationships; and, viii) the general systems approach in which a composite of factors that cause loneliness are regarded in a composite fashion (Flanders, 1982).

Theories of Loneliness

Many divergent ideas about what constitutes loneliness can lead to very complex or confusing research. However, research on loneliness can be supported by establishing more specific criteria for what constitutes this phenomenon. Rather than attempting to cover all models of loneliness, this study focuses on Weiss' (1973) interactionist view, which is also known as the social-emotional typology, and to Peplau & Perlman's (1982) cognitive model. The existential approach (Mendelson, 1990; Stuewe, 1988) is also considered briefly. These models of loneliness have been considered the most influential theoretical approaches on this topic (Paloutzian & Janigian, 1987; Davies, 1995).

Social versus emotional loneliness model. Weiss (1973) identified two distinct types of isolation that pertain to loneliness: emotional isolation and social isolation. Emotional isolation results from the absence of an attachment figure, as well as from high personal sensitivity and restless anxiety. Weiss defined social isolation as an absence of an accessible social network leading to exacerbated feelings of meaninglessness, marginality, aimlessness, and boredom. The work of Weiss added more depth to loneliness research by adding the emotional component rather than concentrating only on the social component. Furthermore, emotional loneliness is comparable to that of distress from being abandoned, whereas, social loneliness is akin to being excluded or losing connections with meaningful others. Weiss further believed that emotional loneliness has more severe effects on individuals than does social loneliness. Interestingly, Clinton and Anderson (1999) found that social loneliness is inversely related to the number of close friends and the ability to modify how one presents oneself. Furthermore, emotional loneliness for men was related to lack of having a reciprocated best friend, whereas for women, emotional loneliness was inversely related to lack of perceived control over their own lives. This means that different types of loneliness can lead to differing observations of various groups (e.g., gender). Hsu, Hailey, and Range's (1987) results supported social and emotional loneliness as distinct subtypes of loneliness, and found that depressed students were more prone to emotional loneliness than were foreign students even though foreign students experienced social loneliness from being apart from their homelands. Correlations have been found between neuroticism and emotional loneliness, but not social loneliness (Cheng & Furnham, 2002). Interestingly, the aforementioned authors found that low general confidence was related to emotional loneliness, but low confidence in social interactions correlated with both emotional and social loneliness. The distinction between social and emotional loneliness was also verified in Hoza et al.'s study (2000) where unsatisfactory peer relationships were related to peer-network loneliness (social loneliness) while lack of close friendships were more related to dyadic loneliness (emotional loneliness).

Cognitive model. The cognitive model of loneliness postulates loneliness as stemming equally from social deficits and from a person's cognitive perspective on fulfillment of their own social needs (Peplau & Perlman, 1982). A person's internal state is the main determinant of the level of loneliness experienced. Peplau and Perlman believed that loneliness is caused by external triggering events and by internal predisposing factors. For example, a person who is prone to depression and is needy would likely be lonelier after a tiff with a close friend than a person who has resilient emotional strength and has little need for connecting with other people. Thus, internal cognitive processes combined with external events can lead to recognition of self as being lonely. In short, loneliness can be a result of expectations not being met in desired social relationships. A lack of objective social support or resources does not automatically trigger feelings of subjective loneliness, but for those predisposed, they can elevate these feelings (Newcomb & Bentler, 1986). Those who are predisposed to loneliness and depression often have these risk factors: shyness, lack-of-connection schema, self-silencing, and involuntary subordination (Dill & Anderson, 1999).

Damsteegt (1992) found that among college students, alienation and isolation, shyness and social anxiety, resentment and bitterness, a fear of being alone, low self-esteem and depression are very highly correlated to loneliness, which suggests that a lack of adequate perceived social network is one of the major contributors to the phenomenon of loneliness. In addition, lonely people tend to be negative in their assessment of others, including those close to them (Wittenberg & Reis, 1986). Levin & Stokes (1986) found that a combination of high neuroticism, low self-esteem and depression along with deficits in social networks accounted for loneliness much better than if these factors were separate. According to Larose, Guay, and Boivin (2002), experienced loneliness can be determined by a combination of cognitive biases (overly negative representations/perceptions of social cues and other people), reduced social opportunities or motivation due to neurosis and/or shyness, and type of support systems in place. Furthermore, lack of social contact as well as personal vulnerability can lead to worsening coping skills, which only further exacerbates experienced loneliness.

Existential loneliness model. According to the existential approach, loneliness can be brought upon by existential crises (Mendelson, 1990) such as deepening alienation of self from others due to feeling no meaning in life or lack of deep kinship with others. One intriguing study demonstrated that people who tended to be more individualistic in devising essays about their photos were more prone to loneliness and alienation than those who were less individualistic (Dollinger, Cook, & Robinson, 1999). Thus, according to this study, some people who have a high need for uniqueness may be more vulnerable to loneliness due to having more difficulty finding kindred spirits than those who are more content to be like others. Even the lack of perceived quality of relationships despite being well connected with others on the external level can lead to intense feelings of loneliness. This is clearly exemplified in Edwin Robinson's poem, "Richard Cory" (1922).

> Whenever Richard Cory went down town,
> We people on the pavement looked at him:
> He was a gentleman from sole to crown,
> Clean favored, and imperially slim.
> And he was always quietly arrayed,
> And he was always human when he talked;
> But still he fluttered pulses when he said,
> "Good-morning," and he glittered when he walked.
> And he was rich - yes, richer than a king -
> And admirably schooled in every grace;
> In fine we thought that he was everything
> To make us wish that we were in his place.
> So on we worked, and waited for the light,
> And went without the meat, and cursed the bread;
> And Richard Cory, one calm summer night,
> Went home and put a bullet through his head.

This poem explicitly describes a man who had many social networks yet suffered deep anguish from emotional loneliness, enough to drive him to suicide. Andersson (1986) discussed the experience of emotional or inner loneliness as resulting from estrangement on all the emotional, social, self, and structural levels. Emotional estrangement relates to experienced lack of intimacy while social estrangement pertains to experienced lack of relatedness to the social environment (Weiss, 1973). Here, intimacy can be defined as the ability to share the personal and private self as well as including the following criteria: an intimate friendship as composed of eight dimensions- self-disclosure, sensitivity and knowing, empathy, attachment, exclusiveness of relationship, degree of helping the friend, being able to ask favors/impose on a friend, openness and the ability to be vulnerable, sharing common activities, and lastly, the ability to trust a friend (Sharabany, 1994; Prager, 1999). Therefore, intimate relationships according to the aforementioned definitions indicate more meaningful and personally enriching friendships as compared to friendships that are present but do not provide opportunities for such emotional intimacy and sharing of the private self. People who have ample social friendships can still be prone to significant emotional loneliness due to the lack of access to friendships that include the components necessary for intimate friendships.

According to Andersson (1986), self-estrangement occurs when the ideal (false) image of self instead of the actual self is accepted and acknowledged by others. Moreover, the pathologies that result from self-estrangement or inability to be genuinely oneself are deteriorations into escapes, dependencies, and strategies of protecting the false self (Brennan & Auslander, 1979). People experiencing structural estrangement often find themselves struggling against the structural norms of their society or culture. For example, many homosexuals find themselves estranged from their society and cultures that either disdain or make taboo their sexual orientation and experience. Andersson (1986) suggested that experiences of loneliness and low self-esteem can be integrated into concepts of estrangement.

Davies (1995) attempted to tie in loneliness research to the main theories, including the rarely studied existential approach to loneliness. He found that people prone to loneliness have low as well as very diffuse self-concepts, which result in self-estrangement. Crisis of identity and lack of purpose also were related to loneliness. Therefore, a person would need to perceive a meaningful connection to self before they can be meaningfully connected to others. However, Weiss (1987) and Davies (1995) cautioned that not enough is known about loneliness, especially the experience of loneliness itself, to establish a sound model that can account for many explanations and postulations about loneliness.

Summary

Factors or consequences associated with loneliness and isolation include physical, emotional, psychological, and social problems. For example, some studies have found that lower quality and quantity of friendships can increase a person's vulnerability to the negative effects of loneliness (Parker & Asher, 1993; Nangle et al., 2003). Loneliness is a phenomenon that affects people from all walks of life, regardless of culture, socio-economics, age, et cetera. Regarding personality types, loneliness tends to be correlated with introversion (more related to social loneliness) and neurosis (more related to emotional loneliness). Findings on gender differences are mixed in that some studies did not note any differences while others did. For those studies that denoted gender differences, males tended to be more vulnerable to experiencing loneliness and its consequences than females. Despite extensive studies on loneliness, there is still no unifying theory that can account for it and its impact on people. However, there are three major theories on loneliness: Weiss' interactionist view (1973), Papau and Perlman's cognitive model (1982), and the existential approach (Mendelson, 1990). Some of the major components of these theories include the differences between social versus emotional loneliness, the discrepancy between perceived self versus actual self and how it can lead to loneliness, and self-estrangement as a fundamental aspect of existential loneliness. Overall, studies are needed to develop more comprehensive models of loneliness in an effort to explore how they might apply to different segments of the population such as deaf and hard of hearing people.

Experiences of the Deaf and Hard of Hearing Individuals

The deaf and hard of hearing population is one segment of the population that many would assume to be prone to loneliness and the effects of isolation. In the first part of this section, basic definitions of deafness and hearing loss based on the medical and sociocultural models will be provided. People who are deaf or hard of hearing have diverse educational and communication backgrounds. For example, deaf students tend to either be mainstreamed in regular school settings where they are the minority or be educated in institutional schools where they are the majority. Deaf and hard of hearing people communicate via signed language (native or English-based), oral speech, or a combination of speech and sign. Past research related to deafness and loneliness will be discussed in the second part of this section.

Definition of Deaf and Hard of Hearing

Biological definition. Biologically, hearing loss occurs when there is a defect in the neural mechanisms that would enable nerve impulses to stimulate the auditory cortex in the brain or when the auditory cortex is damaged or when the conduction of air vibrations to the cochlea or the cochlear itself is damaged. Damage up to the eighth auditory nerve is known as conductive deafness (Harrison, 1988); damage after this point is referred to as sensory neural. The label attached to hearing loss usually depends on the severity of the loss itself. According to audiological assessments, a person with mild to moderate hearing loss would be considered hard of hearing, while a person with severe to profound hearing loss would be labeled deaf (Schelfer, 1993). However, whether a person labels himself/herself as hard of hearing or deaf usually depends on his/her self-identity (Corker, 1996). For example, it has been observed that a person who has severe to profound hearing loss might identify himself/herself as hard of hearing instead of deaf, while a person who has mild hearing loss might identify herself/himself as deaf; however, those cases are in the minority (Scheetz, 2001).

Medical model versus sociocultural model. Some people with hearing loss place these identities on themselves based on social experience rather than the medical model (Woodward & Allen, 1993). This means that some people see their deafness as part of a cultural identity rather than being based on a medical deficit. The medical model postulates deafness as a disability. Professionals who adhere to this model tend to see deafness as a deficit that needs to be corrected and would guide families to counteract this deficit with only services such as oral education and instruments to amplify or correct hearing loss. They would encourage families to teach deaf children to act as if they were hearing. For example, many families with deaf or hard of hearing children have been told by doctors and other professionals never to use signed language lest their children stop learning how to speak, and to integrate their children into regular hearing schools so they can fit into the hearing world. This occurs very frequently, especially as ninety percent of deaf/hard of hearing children are born to hearing parents (Moores, 2001). Given that many of these hearing parents have had no prior exposure to deafness or tend to view deafness as a disability, it is not surprising that most deaf children are raised via the medical model. On the other hand, the sociocultural model does not recognize deafness as a pathology, but as a characteristic of people who belong to a minority group (Woodward & Allen, 1993). People who act according to the sociocultural model would see deaf people as belonging to a unique community with its own culture and language. For that reason, the "D" in deafness is capitalized when referring to the community or culture: Deaf Community and the Deaf (Paul & Jackson, 1993). People within the Deaf Community do not see themselves as handicapped and recognize their culture as having a distinct language with their own customs and history (Bat-Chava, 2000).

In spite of the aforementioned models, the experiences of deaf and hard of hearing people are not so simply defined. There is a wide spectrum of experiences and backgrounds among deaf and hard of hearing people. Given that approximately ten percent of deaf people have deaf parents, the other ninety percent of deaf people were born into hearing families who are less likely to be first exposed to their natural signed language (Moores, 2001). In Canada and the United States of America, the natural signed language is American Sign Language (ASL). There is a Canadian version of ASL; however, the differences between this and ASL in America are minimal. There is actually a much greater difference between LSQ (signed language of French Deaf people in Quebec) and the Canadian version of ASL than the Canadian version of ASL and ASL (Carbin, 1996). For the sake of simplicity, ASL will subsequently be referred to as the native signed language used by Canadian people and participants in this study. Most hearing families of deaf children do not use signed language as their first language. Afterwards, they choose between not learning sign to maintain the oral method, learn signed language based on the English syntax, or learning one of the native signed languages. Unfortunately for many deaf children, many parents opt for no or minimal signed language (Scheetz, 2001). Signed language itself is a true language that enables signers to discuss topics with emotions, concrete or abstract, as economically, effectively, and grammatically as speech (Emmorey, 2002). Furthermore, scientific studies in linguistics have verified that American Sign Language itself does indeed share the same linguistic components as do spoken languages (Liddell, 2003; Bellugi, 1980). Deaf signers tend to have a very powerful connection with signed language itself as a valuable component of their culture (Sacks, 1989; Lane, Hoffmeister, & Bahan, 1996). It provides a bridge to community life and understanding the world. Without that bridge, the consequences are often detrimental for many deaf people. For instance, deaf children who grow up without sufficient access to their Deaf Community frequently become environmentally deprived as a result of interpersonal isolation (Lane, 1992).

During the past decade or so, there has been a strong advocacy movement for the rights of Deaf people and their needs in the professional, educational and personal areas of their lives. As a result, more Deaf people have communication and interpreting services provided for them, their language is being officially recognized by the governments and educational settings, and their visual needs are better served in public sectors. However, hard of hearing people, though many more in numbers, have not had the same benefits or recognition due to less cohesiveness in their community compared to that of the more salient Deaf Community. Unlike the Deaf Community which has a very robust, distinct and notable sense of group identity, those who are hard of hearing have a relatively diffuse and weak sense of group identity (Laszlo, 1995). This is because of the wide variations in hearing loss issues and the fact that their social interactions remain mostly verbal. Consequently, they often view themselves as being the same as everyone else, and are perceived by others as such due to the invisible nature of their disability even though they may have grown up with different experiences because of hearing loss (Warick, 1997).

Background Experiences of Deaf and Hard of Hearing People

General education. Deaf and hard of hearing people usually have been educated in one of two different types of settings: institutional or mainstream schooling. Institutional schooling consists of deaf or hard of hearing children being placed in segregated schooling that focus on deaf/hard of hearing children (Scheetz, 2001). It is more common for deaf children to undergo institutional schooling than it is for hard of hearing children. Regarding the term "institutional", it does not have the same negative connotation as it would among those in the English-speaking community. Deaf people who were educated in separate schooling programs tend to use "institutional" as a reference to their educational backgrounds.

The type of services the aforementioned schools offer depend on the philosophy (backed up by some research) regarding the most effective way to educate deaf children: oral education, Total Communication education, or Bilingual-Bicultural education (Paul & Jackson, 1993; Rodda & Grove, 1987; Moores, 1987). Oral education focuses on developing speechreading and vocal skills to train students to assimilate into the hearing world. Often parents choose this option for their children because they wish them to behave as if they were hearing by relying on lipreading and making use of residual hearing (Scheetz, 2001).

Total communication. Total Communication education adheres to the philosophy that deaf children need all the resources available to them to learn and succeed: signed language, oral communication, fingerspelling, and use of simultaneous sign and speech. Signed English (SE), Seeing Essential English (SEE 1), Signing Exact English (SEE 2), Sign Supported Speech (SSS), Signed Supported English (SSE), or Linguistics of Visual English (LOVE) is used more often within the Total Communication system than ASL (Bornstein, Saulnier, & Hamilton, 1983; Gustason & Zawolkow, 1993; Luetke-Stahlmann & Milburn, 1996). Sign pidgins (PSE), which can be considered to be ASL signs presented in English order, are also commonly used by many deaf people (Stewart & Luetke-Stahlman, 1998). Nevertheless, in this context, the main issue is inclusion of visual communication, which is deemed crucial to communication among deaf people.

Bilingual-bicultural model. The Bilingual-Bicultural approach postulates that native signed language such as ASL is essential for a deaf child's successful education and language development. Basically, a student would be instructed by a hearing and a Deaf teacher in ASL to learn how to write English, based on the belief that if a child learned via his primary language, he would then be able to be bilingual in English and ASL. Furthermore, Deaf students would be exposed to Deaf Culture as well as the culture of the dominant hearing world. The philosophy behind Biculturalism and Bilingualism (Bi-Bi) is that a deaf child has the right and the need to be instructed first in her native language, being that of native Sign (Paul, 1998). Residential schools much more often rely on the Bi-Bi or Total Communication method these days; however, some oral institutions remain. There are also oral and some Total Communication programs in regular school settings.

Overall, deaf students tend to go to institutional schools or are mainstreamed with partial to full services (e.g., interpreting, notetaking, audio-visual technology, etc.).

Mainstreaming. Mainstream schooling consists of individual deaf or hard of hearing students being integrated in regular school settings with the intention of better enabling them to fit into society and to obtain an equal education. The support services in regular school settings range from minimal to partial to full (Charlson, Strong, & Gold, 1992). Mainstreamed students who receive minimal support usually are the only deaf students in their own schools and rarely have full access to interpreting or audio-visual services. Partial services include some access to audio-visual services such as a FM system, note-taking and teacher's aides. When regular schools do have full services, they ensure that deaf or hard of hearing students receive whatever services they require such as fulltime interpreting, real-time captioning, note-taking, and audio-visual services. Schools that have these services tend to have a group of deaf and hard of hearing students rather than just one student. In this congregated schooling, deaf students may be in special classroom for language arts, while attending other classes with hearing peers. Overall, the rate of deaf and hard of hearing students attending mainstream schooling has increased over the years (Martin & Bat-Chava, 2003). For instance, in the USA, over 80 percent of 72,000 deaf and hard of hearing students attended local public schools in 1995 (compared to 28 percent in 1987). Furthermore, over 60 percent of these 72,000 students were mainstreamed in schools where only 1 to 3 deaf or hard of hearing students attended each of these schools (Holden-Pitt & Diaz, 1998; Easterbrooks, 1999).

Hard of hearing students usually go to mainstream schools, and usually receive no services or partial services (Warick, 1997). Hard of hearing people are often faced with belonging to neither the hearing world nor the Deaf Community. Unlike many in the Deaf Community who tend to have a strong group identity, many hard of hearing people do not have a group identity and find themselves isolated. Furthermore, many hard of hearing adolescents tend to be reluctant to identify themselves as being 'hard of hearing' (Israelite, Ower, & Goldstein, 2002). For example, 55.8 percent of hard of hearing students in New Zealand did not identify themselves as "hard of hearing" (Kent, 2003). Unfortunately, those who identified themselves as such were more likely to be victimized by bullying. This suggests that the lack of self-identification reflects the nature of negative stigma regarding hearing loss.

Communication barriers. Some deaf and hard of hearing people cope well in the hearing world, but others have a hard time fitting in due to their difficulties with communication. Yuker (1988) demonstrated that people generally feel uncomfortable when their oral communication is disrupted or when their focus shifts from the topic to attempts at understanding what was spoken. Some deaf and hard of hearing people whose speech is not up to par often find themselves rejected and negatively evaluated by their hearing peers. Interestingly, people generally look upon deaf signers more positively than deaf speakers (Chapman, 1999). Possibly, this may be due to the increased acceptance of Sign and the continued aversion to distorted speech. It has been shown that distorted speech patterns can contribute to negative attitudes towards those with speech impediments (Yuker, 1988). Many deaf children who have received extensive oral training still face difficulties communicating with many hearing people due to untrained listeners not always comprehending these children's speech patterns (Foster, 1998). Therefore, communication barriers between deaf and hearing people can still occur even with extensive speech-training.

Factors That Contribute to Isolation and Loneliness among Deaf/Hard of Hearing People

Impact of isolation. Throughout childhood to adulthood, deaf and hard of hearing people often face social difficulties, since their hearing loss has a major social impact that affects their psycho-social growth (Moores, 2001; Thomas & Gilhome-Herbst, 1980). One major consequence of this is social isolation (Taylor, 1999; Mindel & Vernon, 1971). Social isolation within the family (Rodda & Grove, 1987; Greenberg, 1980), peers (Murphy & Newlon, 1987; Lane, 1984), and community supports (Higgins, 1980; Vernon & Andrews, 1990) can have major repercussions on a deaf or hard of hearing person's psychological development. Isolation leads to a profound feeling of loneliness (Musselman, Mootilal, & MacKay, 1996). Furthermore, isolation, especially among adolescents, can contribute to a poor sense of self, poor communication skills, poorly developed social skills, and feelings of powerlessness among family and peers (Brennan, 1982). Experiences of loneliness often occur from isolation. Deaf and hard of hearing people who miss out on close ties with others often suffer difficulties as postulated by Buhrmeister (1990): people without intimate friendships may miss out on important validating interactions that can result in them feeling less secure, more anxious, and less worthy. Adolescents often experience the turmoil of loneliness and other social struggles, but the extra impact of hearing loss exacerbates the results of social isolation even more.

In general, deaf and hard of hearing people tend to experience different social consequences of their hearing loss. Deaf people who consider themselves part of the Deaf

Community and use signed language as their primary language usually form ties with their culture that can enhance their sense of self and group identity (Furth, 1974; Stokoe & Battison, 1981; Moores, 2001). On the other hand, hard of hearing people and other deaf people who blend in with the hearing world by personal choice or urgings from their parents/community tend to have a weaker sense of identity compared to those who are culturally Deaf and struggle in terms of communication and social growth (Israelite et al., 2002, Benderly, 1980). In Bat-Chava's study (2000), students who had strong Deaf identities (culturally Deaf or Bicultural) had reported somewhat higher self-esteem than did those who identified themselves as "culturally" hearing or had negative views towards the Deaf Community and signed language. One study noted that while deaf children from a range of family backgrounds (deaf parents vs hearing parents who sign vs hearing parents who do not sign) scored reasonably high on a self-esteem scale, those who had both deaf parents had higher self-esteem than the others (Crowe, 2003). Therefore, there are more factors than merely just educational experience that lead to a deaf or hard of hearing child's loneliness.

Institution setting. As mentioned, some deaf people have attended residential schools for the Deaf instead of being mainstreamed in regular school settings. A popular statement for the advantage of residential schools over mainstreaming in regular schools for deaf children is the social structure (Corker, 1996). Instead of facing communication barriers in regular classrooms, deaf students often share the same language and have opportunities to develop self-esteem, social skills such as leadership and involvement in clubs, and the richer learning that comes from intimate connections (Bat-Chava, 2000). However, deaf people in institutional schools can still experience isolation and strong feelings of loneliness (Charlson, Strong, & Gold, 1992). Many deaf people find themselves alienated from their families who cannot communicate fluently with them. Different schooling standards and expectations in many residential schools also intensify the effects of isolation and loneliness outside of the Deaf Community. People who enter residential schools would often experience loneliness from being set apart from their home environment (Scheetz, 2001). However, those who adapt well to Sign and the Deaf Community in their schools feel much less lonely until they mingle again in the hearing world (Scheetz, 2001). Unfortunately, Charlson et al. (1992) found that high academic success could estrange students from their deaf peers. Researchers into the Deaf Community attribute that experience of estrangement to the Crab Theory (Solomon, 1994; Hill & Nelson, 2000). The Crab Theory postulates that whenever someone within an oppressed minority group attains success that puts them on a perceived higher pedestal than his peers, other group members may use criticism, verbal aggression, and other social pressures against this person. Often deaf people who achieve high levels of academic or career success find themselves being alienated due to resentment or jealousy. Overall, Lytle, Feinstein, and Jonas (1987) concluded that deaf people who spend their time in institutional settings tend to be less lonely due to instant social and communication access, providing that they can adapt to Sign; however, estrangement from sufficient home support (for at least some of them) can contribute to experiences of loneliness that may or may not be acknowledged. Moreover, students who have been mainstreamed and then transferred to institutional schools experience more difficulty with emotional and social adjustment than others in these schools.

Mainstream setting. As previously explained, there are various types of mainstreaming. Students who are totally mainstreamed tend to be the only deaf or hard of hearing student in their respective schools or are among a group of a few deaf or hard of hearing students in their own schools (McIntosh, 2000). Students who are partially mainstreamed are able to join with a group of other deaf and/or hard of hearing students while being integrated into regular schools. Regardless of mainstreaming type, deaf and hard of hearing college students were shown to be significantly more lonely than hearing students (Murphy & Newlon, 1987). Charlson et al. (1992) conducted interviews with mainstreamed and residential students rated by teachers as being highly successful in academics. Mainstreamed students attributed their social difficulties to communication barriers rather than not being around other deaf peers on a regular basis. These students experienced isolation differently. For example, one student found herself bullied and overtly rejected. Some other students were not treated so cruelly but found themselves left out of intimate social functions such as after-school parties and being part of "social hangouts". Even those who were considered by teachers and peers to be very socially successful found themselves very lonely due to identity confusion ("Am I a hearing or a deaf person?") and feelings of alienation due to being different from other students. Kent's example of many hard of hearing students in New Zealand being reluctant to identify themselves as hard of hearing, partly due to social stigma and bullying, showcases this fear of alienation (2003). The lack of cohesion among hard of hearing students compared to Deaf students at institutional school likely contributes to this level of isolation and reluctance to reveal one's identity or hearing condition.

Charlson et al. (1992) mentioned also that teachers at regular schools often show little awareness of what transpired in their deaf/hard of hearing students' lives. Many students have minimal or no communication with their parents or their peers, and yet their teachers reported them as having positive support structures. Furthermore, many mainstreamed students work with teacher's aides, who become their primary source of instruction and attention without their teachers and peers being directly involved in their progress (Cundy, 1999). Deaf people experience high degrees of loneliness, regardless of educational background, yet mainstreamed deaf people tend to feel it more intensely due to being more emotionally isolated than their institutional peers (Stinson & Anita, 1999). One study reported that 39 percent of deaf students in mainstream schools experienced "rejection" by their peers compared with the 13 percent of hearing students reporting "experienced rejection" (Cappeli, Daniels, Durieux-Smith, McGrath, & Neuss, 1995). Those who seem to be the least lonely and socially estranged are those who have Deaf parents (Charlson et al., 1992) and/or who have satisfactory parental relationships (Murphy & Newlon, 1987). Interestingly, the degree of hearing loss has not been found to correlate with deaf children's social adjustment (Cappelli et al., 1995). This suggests that other factors rather than the level of hearing loss itself likely contribute to deaf or hard of hearing children's social difficulties. In terms of possible gender differences, Martin and Bat-Chava (2003) found that within the mainstream setting, deaf or hard of hearing girls had better coping strategies and success at developing and maintaining good relations with hearing peers than did deaf or hard of hearing boys.

Impact on adulthood. Very little research has been done on deaf/hard of hearing adults and their experiences of loneliness. What happens in the lives of the deaf or hard of hearing adult as well as his or her psychosocial structure often depends on his or her background. People who underwent schooling in institutions tend to establish their social roots within the Deaf Community for social support and enhancement (Scheetz, 2001). If employed, they often work alongside their hearing peers. Even with isolation often occurring at work, they find comfort in the support from peers in their Deaf Communities. However, those who find themselves perceived as not conforming to the norm of their Deaf Community (e.g. choosing to use speech more than signed language; having difficulty keeping up with conversations in signed language) can become excluded (Harris, 1995; Nagase, 1995). Since the majority of Deaf people come from hearing families who do not provide adequate support and have little meaningful ties to the hearing world, being excluded from the Deaf Community can further contribute to their social and emotional difficulties. Some people who have been mainstreamed end up connecting with the Deaf Community as their primary source, or at least one of their sources, of socializing. However, deaf people who were fully mainstreamed and had no exposure to other deaf people were far less likely to become part of the Deaf Community in adulthood than those who attended Deaf schools or had adequate exposure to other deaf people even in oral settings (Bat-Chava, 2000).

Effects of isolation and loneliness carry well into the adulthood of affected deaf and hard of hearing persons, not only on a personal level but on a social level. In the workplace, communication barriers create social difficulties and affect the performance of people who are deaf (Steinberg, Sullivan, & Montoya, 1999). Psychosocial maladjustment resulting from isolation and communication barriers very often stem from childhood. One report showed that hearing families often adjusted poorly to their children's deafness as their level of anxiety and mourning increased (Kashyap, 1986). Expectations for their deaf children were often profoundly lowered as their sense of security was shaken, and these families felt that the presence of their deaf children had negative influence on them personally and on a family level. Fortunately, nowadays strong advocating and increased education regarding the Deaf Community and signed language has somewhat ameliorated the aforementioned negative dynamics within hearing families of deaf children (Spencer, Erting, & Marschark, 1999). For instance, a few schools have adopted social skills training, such as role play, to decrease social isolation and increase self-esteem among deaf students (Barrett, 1986). Moreover, strategies for coping with isolation and better integration into the workplace have been suggested (Steinberg et al., 1999).

Despite the positives, the intended fruits of integration, be they at school, work, within the family, or in the general community, take considerable time to develop. The removal of communication barriers and significant decreases in social and especially emotional loneliness do not happen overnight. The debilitating effects of isolation and emotional maladjustment of many deaf and hard of hearing people still remain. Vernon and Greenberg (1999) found that deaf and hard of hearing people display disproportionate acts of aggression and hostility, and as a result deaf and hard of hearing people are overly represented in the prison population of the USA. They postulate that high levels of communication difficulties, unemployment, underemployment, and poor education create a volatile atmosphere of frustration that tends to manifest in antisocial behaviours. It has been suggested that constant isolation can play a major role in maladjusted behaviours among deaf and hard of hearing adolescents (Vostanis, Hayes, Du Feu, & Warren, 1997). Deaf and hard of hearing individuals who have major social problems from childhood and adolescence are at risk of continuing maladaptive patterns in adulthood (Gregory, Bishop, & Sheldon, 1995). Even though this study focuses on hard of hearing and deaf adolescents, it is crucial to acknowledge the impact of social experiences, especially possible loneliness, from adolescent times on the deaf or hard of hearing person's adaptive skills in adulthood. This acknowledgement can lead to develop successful intervention strategies during the younger years.

Summary

Loneliness and isolation are prevalent throughout the population, and can result in serious psychological and social consequences. Even though people from all walks of life (e.g., socioeconomic class, culture, age) experience this, there are certain groups or clusters of individuals who may be more vulnerable to loneliness and its implications. One such group that can be reasonably perceived as being more prone to loneliness than many other groups includes those who are deaf and hard of hearing. This group frequently faces communication and social barriers in a world that usually does not provide equal access, resulting in isolating consequences. Even though many have written about loneliness and isolation experienced by deaf and hard of hearing people, there have been surprisingly few studies that measured the level of loneliness among these people. The basic conclusions of past research that measured loneliness indicated that deaf or hard of hearing mainstreamed students tended to be lonelier than their hearing peers, and that institutional students seemed to be less lonely than their peers if they were satisfactorily immersed in the Deaf Culture. However, institutional students were noted to sometimes be affected by loneliness, though usually for different reasons than mainstream students.

More research is needed to gain more insight into the prevalence and effects of loneliness among deaf and hard of hearing people. For example, the question still remains as to whether or not there are significant differences in experienced loneliness between those who are mainstreamed in regular schools and those who attend institutional schools. Furthermore, how much do they differ, if at all, in experienced loneliness from hearing people? Do the aforementioned deaf and hard of hearing groups experience significant levels (compared to each other and to their hearing counterparts) of emotional and social difficulties associated with loneliness such as depression, emotional troubles, personal maladjustment, limited friendships, and decreased satisfaction with social aspects of their lives? One critical segment of the deaf and hard of hearing population would be adolescents, given that the secondary school environment has been a robust source of study for loneliness. Furthermore, there is an opportunity for straightforward comparisons between deaf and hard of hearing adolescents from different educational backgrounds.

CHAPTER 3

Method

Purpose of Study

The primary goal of this study is to compare deaf and hard of hearing students from differing school backgrounds in terms of experienced loneliness and other related emotional or adaptive states, especially as there have been relatively few studies on the impact of loneliness on deaf and hard of hearing people. In this chapter, specific purposes of this study will be outlined as well as other factors such as type of participant, procedures, and descriptions of questionnaires.

Research Questions

The purpose of this study is to examine the phenomenon of experienced loneliness among the deaf and hard of hearing adolescent population. Several research questions will be investigated:

1) Are there differences in reported loneliness between deaf/hard of hearing students from institutional and mainstreamed school backgrounds? How do they compare with reported loneliness scores of a hearing control group?

2) Are there differences in reported symptoms of depression between deaf/hard of hearing students from institutional and mainstreamed school backgrounds? How do they compare with reported depression symptoms of a hearing control group?

3) Are there differences in reported levels of emotional states or adaptive states (that are conceptually related to loneliness) between deaf/hard of hearing students from institutional and mainstreamed school backgrounds? How do they compare with the said states reported by a hearing control group?

4) Are there relationships between reported emotional states or adaptive states and reported loneliness? For example, what is the relationship between depression and loneliness?

5) Are there differences between males and females in respect to reported loneliness, depression, emotional states, and adaptive states?

6) What are the interaction effects, if any, between school background and gender effects in relationship to reported loneliness, depression, emotional states, and adaptive states?

Method

Participants

Deaf and hard of hearing students with an institutional school background were recruited at a provincial school for the Deaf in Ontario. Deaf and hard of hearing students with a mainstream school background were recruited at 14 secondary schools within both the Thames Valley District School Board (TVDSB) and the London District Catholic School Board (LDCSB). Likewise, the hearing students were from 6 secondary schools within TVDSB and LDCSB. The head of the research department from each school board was approached by the author to obtain permission. An application form was filled out by the author that included personal information, purpose of the research, a copy of ethical approval from the University of Alberta, and copies of questionnaires, consent forms, and debriefing forms. After permission was granted by the research board and ethics committee of each school board, liaison persons from each school board were contacted by the author. The liaison persons facilitated contact with the students as well as their parents (for those 17 years and under) to provide consent forms. Once sufficient positive replies were given for the consent forms, arrangements were made with either the liaison person or the school staff to meet with the student(s) to administer the questionnaires.

Ninety students aged 13 to 20 participated in this study, but four were eliminated due to not following instructions or due to warnings of extreme invalidity (as indicated by combination of V-index in the BASC and highly inconsistent results, which suggest poor reading comprehension or sabotaged answers). The remaining 86 participants consisted of 27 deaf/hard of hearing students (16 males and 11 females) from the institutional school background, 28 deaf/hard of hearing students (15 males and 13 females) from a mainstreamed school background, and 31 hearing students (16 males and 15 females). Overall, 39 females and 47 males were involved in this study. In Table 1, the ages of students are shown. Most of the mainstream students communicated using oral methods. A few of them used signed language as well as interpreting services at school, but also tended to be comfortable with the English language. As for the institutional students, all of them were able to communicate using signed language, though the majority of them (N = 19) originally came from mainstreaming school which incorporated oralism or support services such as interpreting into their programs.

Table 1

Descriptive Statistics of Age of Students

	Mainstream		Institutional		Hearing		Total	
Gender	M	(SD)	M	(SD)	M	(SD)	M	(SD)
Male	15.80	(1.61)	16.75	(1.65)	15.71	(1.64)	16.13	(1.66)
Female	15.84	(1.64)	17.73	(1.62)	16.08	(1.44)	16.46	(1.67)
Total	15.82	(1.52)	17.15	(1.68)	15.94	(1.53)	16.28	(1.67)

Measures

Loneliness scales. As for the loneliness scales, the UCLA Loneliness Scale-Revised (Russell, Peplau, & Cutrona, 1980) and the Peer Network and Dyadic Loneliness Scale (Hoza, Bukowski, & Beery, 2000) were used. The revised UCLA scale has a high internal consistency with a coefficient alpha of .94 (Russell et al, 1980). It has been found to have a high concurrent validity in terms of measuring reported feelings of loneliness, as opposed to measuring other emotions not related to loneliness. Furthermore, it has strong discriminant validity. Other studies on loneliness have demonstrated that the UCLA scale is a highly valid measure of loneliness for adolescents (Mahon, Yarcheski, & Yarcheski, 1995; Neto & Pinto, 2003). The UCLA scale has been found to be a very strong measure of social loneliness, while being considered a moderate measure of emotional loneliness (Cramer & Barry, 1999). A reliability analysis showed that the 19 UCLA items had a coefficient alpha of .86. One item from the UCLA Loneliness Scale was omitted in this study. While the means for the UCLA scale is valid for analytical purposes, it cannot be compared at "face value" with other studies that have used the UCLA scale.

The UCLA scale, while being very efficient at measuring social loneliness, has been criticized for: i) lacking self-concept measures; ii) not focusing enough on people's emotional loneliness (Davies, 1995); and, iii) failing to address the issue of friendship (Hoza, Bukowski, & Beery, 2000). Hoza et al. (2000) designed the Peer Network and Dyadic Loneliness Scale (PNDLS) to address the question of friendship quality and social dissatisfaction along with social and emotional loneliness. Specifically, the PNDLS can also be divided into two subgroups: Peer Network Loneliness (deficits in peer group relationships) and Peer Dyadic Loneliness (lack of close dyadic friendship with peers). The internal consistency of the PNDLS ranges from .84 (Peer Dyadic Scale) to .88 (Peer Network Scale). Both loneliness scales were chosen for their strengths in identifying social loneliness (UCLA scale) and in determining the perceived quality of friendships among peers in terms of peer networks and dyadic relationships (PNDLS scale). A reliability analysis showed the coefficient alpha of PNDLS in this study to be .85.

BDI-II. The Beck Depression Inventory (BDI; Beck & Steer, 1993) is one of the most widely used self-report instruments for detecting and measuring the severity of depression in the normal population (Piotrowski & Keller, 1992). Furthermore, the BDI has been upgraded to its second version: BDI-II (Beck, Steer & Brown, 1996). According to Vredenburg, Flett, and Krames (1993), there is no support for any significant differences in the level of depression experienced by those with elevated scores on the BDI and by clinical patients diagnosed with depression. However, the BDI-II's symptoms now correspond to all the diagnostic criteria listed in the DSM-IV-R (Diagnostic and Statistical Manual of Mental Disorders, fourth edition, revised). Some of the symptoms of depression listed in the BDI-II include Punishment Feelings, Suicidal Thoughts or Wishes, Loss of Interest, Agitation, Concentration Difficulty, Worthlessness, Loss of Energy, Pessimism, Guilt Feelings, Loss of Appetite, Dislike of Self, Sense of Failure, Fatigue, Episodes of Crying, Self Accusation, Feelings of Sadness, Social Withdrawal, and Fatigue.

The BDI-II is a 21-item questionnaire that ought to take approximately 5 minutes to complete. The minimum age requirement for using the inventory is 13 years of age. Overall, the participant is to choose within each item which statement best matches their personal experience within the past two weeks.

According to the Psychological Corporation (2002), the reliability of the BDI–II (Coefficient Alpha = .92) is higher than the BDI (Coefficient Alpha = .86). Furthermore, a study by Sprinkle, Lurie, Insko, Atkinson, Jones, Logan, and Bissada (2002), the reliability of the BDI-II was found to be .96. Within this study, the coefficient alpha of the BDI-II is .85.

The BDI-II has been tested for different types of validity. First, the criterion-related validity of BDI-II has been supported by a high correlation (.83) when correlated with the major depressive episode portion of the Structured Clinical Interview for DSM-IV Axis I Disorders (Sprinkle et al, 2002). Second, a study on the BDI-II has indicated good criterion-related validity for assessment of depressive samples of the population (Schotte, Maes, Cluydts, De Doncker, & Cosyns, 1997). Third, Steer and Clarke (1997) compared the BDI-II with the Beck Anxiety Inventory (Beck & Steer, 1993) and the

Sociotropy and Autonomy Scales (Clark, Steer, Beck & Ross, 1995). They found high convergent validity ($r = .56$ and .35) with both scales, respectively.

The BDI-II is highly regarded professionally for its clarity, simplicity, user-friendliness (for both participant and for examiner), ease of interpretation, and high reliability and validity. Since people who experience elevated levels of personal loneliness ought to experience at least some elevated levels of depression, the BDI-II ought to be beneficial in identifying those persons who are currently experiencing depression. There are significant correlations at the .001 level between reported experienced loneliness on the loneliness scales used in the current study and elevated depression scores on the BDI-II ($r = .455$ with UCLA scale; $r = .409$ with PNDLS scale). This measure was found to be a reliable measure of depression among deaf people (Leigh & Anthony-Tolbert, 2001).

General information questionnaire. A questionnaire was designed to gather background information about the individual participants (See Appendix). Examples of information requested were age, gender, exceptional status (where it could be discerned if a child identified him/herself as hard of hearing or deaf among other conditions), type of school background for both elementary and secondary school settings including number of years in each area, family members, first language, mode of communication, grade level, number of casual friends, number of close friends, relationship status, satisfaction with social life, satisfaction with family life, satisfaction with school life, source of support, and interest/hobbies. In this study, analyses only included participants' recorded number of casual and close friends, and satisfaction levels as they are conceptually related to presence or lack of loneliness. The "number of casual friends" item was coded into four groups: None (0), A Few (1-4), Some (5-19), and Many (20 and up). The "number of close friends" item was coded into seven groups: None, 1, 2, 3, 4, 5, and 6+. The satisfaction questions were Likert scales with ranges from "1" representing "Not Satisfied" to "7" representing "Very Satisfied". The reliability scores were found for the friendship scales (*r* = .58) and the satisfaction scales (*r* = .54). There are significant correlations at the .01 level between Casual Friends and the UCLA Loneliness Scale (*r* = -.34) and PNDLS Scale (*r* = -.35). The correlation between Close Friends and UCLA is significant at the .05 level (*r* = -.24), while the correlation between Close Friends and PNDLS is significant at the .01 level (*r* = -.30). There is a significant correlation between Casual Friends and the BDI scale at the .05 level (*r* = -.24), but not between Close Friends and the BDI scale. Regarding the Satisfaction scales, UCLA is correlated with Satisfaction with Social Life at the .01 level (*r* = -.49), but not with the other two Satisfaction scales. The PNDLS is also correlated with Satisfaction with Social Life at the .01 level (*r* = -.56), but not with the other two Satisfaction scales. As for the BDI scale, there are correlations with Satisfaction with Social Life at the .01 level (*r* = -.30), with Satisfaction with Family Life at the .01 level (*r* = -.41), and with the Satisfaction with School Life at the .05 level (*r* = .28).

BASC. The BASC (Reynolds & Kamphaus, 1992) is a rating scale that includes assessment of clinical constructs, adaptive behaviour functioning, and self-perceptions of children from ages 2 ½ to 18 years. It is a multi-method system that has four components which may be used individually or in any combination: a) parent and teacher rating scales that contain descriptions of children's observable behaviour; b) self-report rating scale in which children describe their emotions and self-perceptions; c) structured developmental history; and d) classroom observation system that has components for recording and classifying behaviour. However, for the current research, only the self-report rating scale

(SRP) was used, specifically the adolescent form (for ages 12-18). Basically, the SRP is an inventory of statements designed to evaluate the behavioral personality, and emotional functioning of children via self-perceptions. The SRP includes assessment of Clinical Maladjustment (Anxiety, Atypicality, Locus of Control, Social Stress, Somatization), School Maladjustment (Attitude to School, Attitude to Teachers, Sensation Seeking), Other Problems (Depression, Sense of Inadequacy), and Personal Adjustment (Relations with Parents, Interpersonal Relations, Self-Esteem, Self-Reliance). Moreover, the Emotional Symptoms Index (ESI) is an overall composite score to provide an analysis of a person's overall level of problematic emotional functioning.

The SRP is a 186-item questionnaire of true/false statements in which the adolescent determines if the statement fits their self-perception (Reynolds & Kamphaus, 1992). Typically, this test takes approximately 15-25 minutes to complete (Flanagan, 1995). The SRP also includes three validity scales: an "F" index designed to detect a negative response set, an "L" index that assesses social desirability or a positive response set, and a "V" index designed to detect invalid responses due to poor reading comprehension, failure to follow instructions, or failure to cooperate with the testing process. Furthermore, consistency and patterning indexes are included for the SRP as well (Matazow & Kamphaus, 2001).

According to the BASC manual (Reynolds & Kamphaus, 1992), the reliability for BASC is scored for: internal consistency and test-retest reliability. The reliability levels for the three BASC components (Parent's Rating Scale, Teacher's Rating Scale, and Self-Report of Personality) are high. The internal consistency of SRP is approximately .80 to

.82, while the test-retest correlation is approximately between .85 and the mid .90s (Sandoval & Echandia, 1994; Flanagan, 1995).

Several studies have found high levels of validity of the BASC (Matazow & Kamphaus, 2001; Sandoval & Echandia, 1994; Flanagan, 1995; Vaughn, Riccio, Hynd, & Hall, 1997). The correlations between BASC and the Achenbach Child Behaviour Checklist is between the .60s and the low .90s (Vaughn et al, 1997), with the correlation between the BASC-SRP and the Achenbach being at the low end of the range, which indicates good concurrent validity. This is due to the fact that the BASC-SRP reflects a person's reported emotions and cognitions and the Achenbach represents behaviour. Specifically, it has been found that the SRP has meaningful correlations (in the .60s to .80s) with the Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway & McKinley, 1943) for adolescents aged 16 to 18 years old (Flanagan, 1995) as well as with the Youth Self-Report and the Student Rating Scales of the Behavior Rating Profile (Sandoval & Echandia, 1994). Sandoval & Echandia (1994) found good criterion-related validity of the BASC for the following areas: Conduct Disorder, Behaviour Disorder, Depression, ADHD, and Emotional Disturbance.

The BASC is considered to be one of the most useful and sophisticated rating scales for school-age children (Sandoval & Echandia, 1994), and has been highly recommended as an assessment tool in child and adolescent psychology (Flanagan, 1995). Matazow & Kamphaus (2001) noted that the BASC's multidimensional approach allows for quantitative measurement of behaviour and personality from a clinical and adaptive behaviour functioning viewpoint, as well as providing valuable qualitative information about the child's behaviour and personality patterns. The BASC was devised with the purpose of identifying the level of adaptive behaviour. Identification of adaptive behaviour levels has been found to be critical in understanding the level of socio-emotional behaviour of children (Wolters, Brouwers, Moss & Pizzo, 1994) and the level a child can avoid development of internalizing problems (Brown, Eckman, Baldwin, Buchanan, & Dingle, 1995).

Matazow & Kamphaus (2001) listed a number of advantages for using the BASC in assessing children and adolescents. First, when the BASC was devised, careful consideration was made to make the BASC relevant to and compatible with the target groups. Normative samples were representative of the US and Canadian population for those between the ages of 2 ½ to 18 while taking into account race and ethnicity. Clinical samples were derived from self-contained classrooms, community mental health centers, residential schools, juvenile detention centers, and mental health clinics (Flanagan, 1995). Regarding the questionnaires, professionals and students were consulted regarding the items, which then were carefully evaluated for readability, acceptability, and comprehensiveness. Most importantly, there are no identical items on multiple scales to make interpretation easier as well as to make it more statistically sound (Matazow & Kamphaus, 2001). According to Sandoval & Echandia (1994), the BASC "represents a synthesis of what is known about developmental psychopathology and personality development." (p. 420). Second, the record forms of the BASC can be easily understood by those filling them out. Moreover, the BASC's efficient scoring system makes it very convenient for the examiner to read, evaluate and interpret. Third, the results of the BASC scores can take into account gender differences. For example, the examiner may choose to compare the BASC results of a female individual with the general population within her age range or with the female population within her age range. Fourth, the BASC's value not only lies in its observation, classification and evaluation of a child's personality and behaviour states, but also as a guideline for treatment programming and measurement of future behaviour or emotional state changes based on treatment. Overall, the BASC has been found to be an invaluable tool to be used in the psychoeducational setting in terms of identification of a child/adolescent's levels of adaptive behaviour and emotional state as well as monitoring of a child/adolescent's future progress (e.g., assessment of change).

Recent research has discovered more strengths and weaknesses of the BASC (Gladman & Lancaster, 2003; Wilder & Sudweeks, 2003). First, the BASC is reported to have advantages over scales such as the Child Behaviour Checklist (Achenbach, 1991) due to the separation of the primary children and adolescent groups and separation of symptoms representing Anxiety and Depression as well as making distinctions between different types of attention/hyperactivity (Gladman & Lancaster, 2003). Second, the BASC has included Adaptive scales which allow for analysis of children/adolescents' social functioning and adaptability, which many other scales do not include. On the other hand, the BASC-SRP lacks behavioural components, which makes it difficult for people to analyze a person's behaviour patterns based on self-report alone (Gladman & Lancaster, 2003). The BASC-SRP focuses mainly on a person's self-reported emotions and cognitions. Since the inner states of participants in the current study are essential, the BASC-SRP's lack of behavioural focus is not problematic. Second, Wilder and Sudweeks (2003) noted that most researchers using the BASC fail to implement reliability data for their own work, especially if focusing on culturally diverse students with emotional disorders. Instead, these researchers cite reliability scores from the BASC manual

(Reynolds & Kamphaus, 1992). However, Flanagan (1995) has drawn clinical norms from children and adolescents who have disabilities, who attend self-contained classrooms, and/or are part of residential schools. In this study, the reliability score of the BASC-SRP is .73. Therefore, it is reasonable to infer that the BASC can be fairly applied to the population studied here.

For this study, specific composites and subscales were selected based on their conceptual relevance to the research topic. Two composites (Personal Adjustment & Emotional Symptoms Index) and their subscales were examined since they can be conceptually related to loneliness. Other subscales under these composites include Social Stress, Sense of Inadequacy, Anxiety, Depression, Relations with Parents, Interpersonal Relations, Self-Esteem, and Self-Reliance.

Correlations were found between these scales and the loneliness scales and the BDI scale, thus supporting the relevance of these BASC scales to this study. There are high correlations between the Emotional Symptoms Index composite at the .001 level and UCLA ($r = .69$), PNDLS ($r = .62$), and BDI-II ($r = .69$). High correlations at the .001 were also found between the Personal Adjustment composite and UCLA ($r = -.63$), PNDLS ($r = -.50$), and BDI-II ($r = -.47$). Similar patterns were found for individual subscales such as Social Stress, Depression, Interpersonal Relations, Self-Esteem, and Self-Reliance. For example, the correlation was at the .001 level between Social Stress and UCLA ($r = .66$), and as well between Interpersonal Relations and UCLA ($r = -.71$). There was also a high correlation between BDI-II and Depression at the .001 level ($r = .61$).

Videotaped questionnaires. Since the first language is ASL for many Deaf students at institutional schools, it was necessary to produce videotapes of the questionnaires and scales in ASL. Marilyn Beernink, a Deaf woman was hired to help produce this videotape. She is a certified ASL instructor who has many years of experience teaching ASL classes and is a prominent member of the Deaf Community (e.g., having Deaf family members, being educated in an institutional setting, and very active within Deaf Cultural events). First, she and the author worked together to ensure that each questionnaire was accurately represented in ASL, including the instructions and all the items. She was then filmed replicating the questionnaires in ASL. Afterwards, the author went to the film editing studio at the University of Western Ontario Social Science department to enhance the professionalism of these videotapes by inserting screens with the questionnaire title or item number/question in their appropriate places (e.g., between items), deleting unnecessary footage (e.g., long pauses, aborted takes, etc.), and establishing a consistent flow in the films (e.g., approximately 10 seconds between items).

Procedure

During data collection sessions, the number of students at one sitting ranged from one to seventeen. For the mainstream deaf/hard of hearing and hearing students, they filled out the questionnaires and then were debriefed after all was completed. As mentioned in the "Participants" section, most of the mainstream students' primary communication method was speech, while a few of them used signed language but were also able to work independently with a written questionnaire. The signers were provided the option of using the videotapes, yet all but one of them declined. However, interpreters or educational aides and the author were present to assist if any of them requested clarification of any items. As for the hearing students, since the author is Deaf, a hearing assistant administered the questionnaires at schools to assure that communication was clear.

The deaf/hard of hearing students from a Provincial School for the Deaf were given the opportunity to use the videotaped versions of the questionnaires to assist them in filling out the forms. Approximately 20 students declined to use the videotapes to assist with their filling out the written questionnaires as they indicated that they could fill them out on their own. The remaining used the videotapes to assist with their filling out the written general and loneliness questionnaires. However, some of those who opted to use the videotapes decided to proceed with the BDI-II independently, while all filled out the BASC on their own without use of the videotapes. Staff fluent in ASL and the author were present for clarification, if needed, and the students were informed of that option. For example, if any student did not understand the item, one of us explained in ASL what it meant. They were debriefed after completion of the questionnaires. For the students from all groups, the total time for completing the questionnaires ranged from 15 minutes to approximately an hour.

Ethical Considerations

All participants were given an informed consent form, which stated that they were free to withdraw from this study at any time without any consequences. If they agreed to participate, they signed this consent and then proceeded with the questionnaires. At the end of their participation, they were debriefed. Each participant received a brief article stating the purpose of the research and the expected outcomes, as well as the researcher's contact information. Parental consent was obtained beforehand for consenting students aged 17 years and under.

CHAPTER 4

Results

Overview

This study compared the difference in experienced loneliness and depression between high school students from various educational backgrounds: deaf/hard of hearing students mainstreamed in regular school settings, deaf/hard of hearing students in institutional school, and hearing students in regular school (control group). Moreover, comparisons were made between males and females as well as the interactions between gender and educational backgrounds in regards to effects on experienced loneliness and depression.

Descriptive statistics, adjustment of outliers, and assumptions of homogeneity will be provided before discussing the results of the MANOVA and univariate ANOVA tests for each group of scores. The first group of scales to be analyzed include the UCLA Loneliness Scale score, the PNDLS Loneliness Scale score, and the BDI Depression Scale score. For the BASC, two MANOVAs were conducted: one for the conceptually relevant (e.g., related to loneliness and depression) composite scores and another for the conceptually relevant subscale scores. The third and fourth group of variables consist of friendship scale scores and level of satisfaction scale scores, respectively.

Statistical Analyses

The main statistical analyses involved a 3 (School Background) x 2 (Gender) MANOVA on groups of scale scores that were logically related (e.g., loneliness and depression scales). The Wilks' Lambda was selected as the principal statistic in testing the null hypothesis. When the MANOVA indicated a significant effect (or approached significance), subsequent univariate ANOVAs were examined. Post hoc pairwise comparisons (Bonferroni test) were used to further interpret significant main and interaction effects. An alpha level of .05 was used to indicate significant differences in all tests. For groups with more than 20 participants (e.g., main effect analysis), an alpha level of .10 was used to indicate if any differences approached significance. Stevens (2002) suggested that MANOVAs can produce poor levels of power if there are less than 20 participants in each group. Caution was recommended against simply dismissing results that were just above the accepted level for rejecting the null hypothesis. Therefore, one solution to addressing the potential low power was to adopt an alpha level of .15 to indicate if any differences approached significance when comparing groups that have less than 20 participants each (e.g., interaction effect analysis).

Analysis of Loneliness and Depression Scales

Descriptive statistics. All 86 participants successfully completed the UCLA, 85 finished the BDI and 82 participants finished the PNDLS. For each cell within the interaction effect, the number of participants ranged from 10 to 16 (e.g., female Mainstream students, male Hearing students, etc.). Descriptive statistics including means, standard deviations, and range of scores by School Type variable for the UCLA, PNDLS, and BDI scale scores are presented in Table 2. As previously noted, the UCLA scale has one omitted item, but is still valid for analytical purposes, though it cannot be compared at "face value" with those of other studies.

Table 2

Descriptive Statistics of the Loneliness and Depression Scales and F values from Univariate ANOVA

	Mainstream			Institutional			Hearing			
Scales	M	SD	Range	M	SD	Range	M	SD	Range	*F*[a]
UCLA	35.93[1]	7.65	25 - 54	38.70[2]	6.41	27 – 51	31.36[1,2]	7.71	20 – 50	8.60***
PNDLS	31.25	8.29	16 – 46	34.46	8.15	19 – 51	29.11	10.98	16 – 55	2.62
BDI	9.18[3]	5.31	1 – 21	14.19[3]	9.03	0 – 34	9.58	7.05	0 – 25	3.91*

Note. UCLA = UCLA Loneliness Scale; PNDLS = Peer Network Dyadic Loneliness Scale Total; BDI = Beck Depression Inventory.
[a] *Df* for UCLA were (2, 80), for PNDLS (2, 76), for BDI (2, 79).
[1] Significant difference between Mainstream and Hearing, $p < .05$.
[2] Significant difference between Institutional and Hearing, $p < .01$.
[3] Significant difference between Mainstream and Institution, $p < .05$.
$N = 86$ for UCLA, 82 for PNDLS, 85 for BDI * $p < .05$ *** $p < .001$.

Outliers. Data were analyzed to determine if there were any outliers that would possibly bias the results. The outliers were defined as values that were at least two standard deviations away from the group mean. There were two outliers, both high scores, on the BDI scale (one in the Hearing group and the other in the Mainstream group) that were subsequently adjusted to the highest score plus 1 (Tabachnick & Fidell, 2000).

Assumption of homogeneity. Box's M test was used to examine the homogeneity of the covariance matrices of the dependent variables (UCLA, PNDLS, and BDI). The Box's M was significant at the .05 level, but not at the .001 level which is a more appropriate criteria when sample sizes are larger (N > 20; Tabachnick & Fidell, 2000). Next, Levene's test for equality of the variances was used to examine the individual variables. There were no violations of equality for the UCLA and PNDLS. However, for the BDI scale, the Levene's test was significant at the .01 level. This can be attributed to the larger sample size (N > 20) making the Levene's test unnecessarily conservative. As the Levene's test was not significant at .001 level (Tabachnick & Fidell, 2000), the BDI will still be examined below.

Differences in Reported Loneliness and Depression between Students from Different School Types

Multivariate analysis. A MANOVA was conducted to examine the effects of School Type (3) and Gender (2) variables on loneliness and depression. Due to five participants not completing either the PNDLS or BDI, the MANOVA included a total of 81 participants. The results showed a significant main effect of School Type, *F*(6, 146) =

2.98, $p = .009$. The main effect of Gender approached significance, $F(3, 73) = 2.41$, $p = .074$. The interaction effect approached significance, $F(6, 146) = 1.79$, $p = .105$.

Research questions. The following Univariate ANOVAS will address the research questions related to whether or not there are significant differences between school backgrounds and reported loneliness and symptoms of depression. Furthermore, the questions of there being gender and interaction effects will be addressed.

Effect of school type. Subsequent Univariate ANOVAs were conducted for the UCLA, PNDLS, and BDI scale scores (F values and degrees of freedom shown in Table 2). There was a significant main effect of School Type for the UCLA Loneliness Scale score. Post-hoc multiple comparisons (Bonferroni test with .05 significance level) indicated that the Hearing group reported significantly lower loneliness scores than the Mainstream and Institutional groups (See Table 2).

For the PNDLS scale, main effect of the School Type approached significance, $F(2, 76) = 2.62$, $p = .079$. PNDLS measures two aspects of loneliness: a) lack of involvement in a social network (Peer-Network: 8 items); and, b) absence of a close dyadic friendship (Dyad: 8 items) (Hoza et al., 2000). The two PNDLS subscale scores were significantly correlated ($r = .707$).

A separate univariate ANOVA indicated that the main effect of School Type was significant for the Peer-Network subscale score, $F(2, 76) = 3.21$, $p = .046$. Post-hoc multiple comparisons did not indicate any significant differences between the three groups, although the difference between Institutional students and Hearing students approached significance. There was no significant main effect of School Type for the Dyad subscale score.

Finally, a significant main effect of School Type was found for the BDI scale score. As shown in Table 2, post-hoc multiple comparisons indicated that Institutional students reported higher BDI depression scores than Mainstream students. The difference between Institutional and Hearing students approached significance. The average depression scores of both mainstream and hearing students are equivalent to a person who scored within the normal range (scores of 0-13). However, the average depression scores of the institutional students fell within the mild range (scores of 14-19).

Effect of gender. Univariate ANOVAs indicated no significant main effect of Gender for the UCLA and BDI scale scores. However, the analyses with the PNDLS scores showed a significant main effect for Gender, $F(2, 76) = 6.80$, $p = .011$. Males (M = 34.11, SD = 7.84) reported higher loneliness scores than did females (M = 28.41, SD = 10.27).

Separate univariate ANOVAs with PNDLS subscales as dependent variables showed a significant main effect of Gender, $F(1, 76) = 9.91$, $p = .002$, with males (M = 17.04, SD = 4.47) reporting higher Dyad scores than females (M = 13.30, SD = 5.68). No significant main effect of Gender was observed for the Peer-Network subscale.

School type by gender interaction effect. Univariate ANOVAs did not show any interaction effects for BDI scales, but did show a significant School Type by Gender interaction effect for the UCLA Loneliness Scale, $F(2, 80) = 5.45$, $p = .006$. Post-hoc pair-wise comparisons showed numerous differences between the groups. Figure 1 illustrates the directions of the relationships between the School Type and Gender variables.

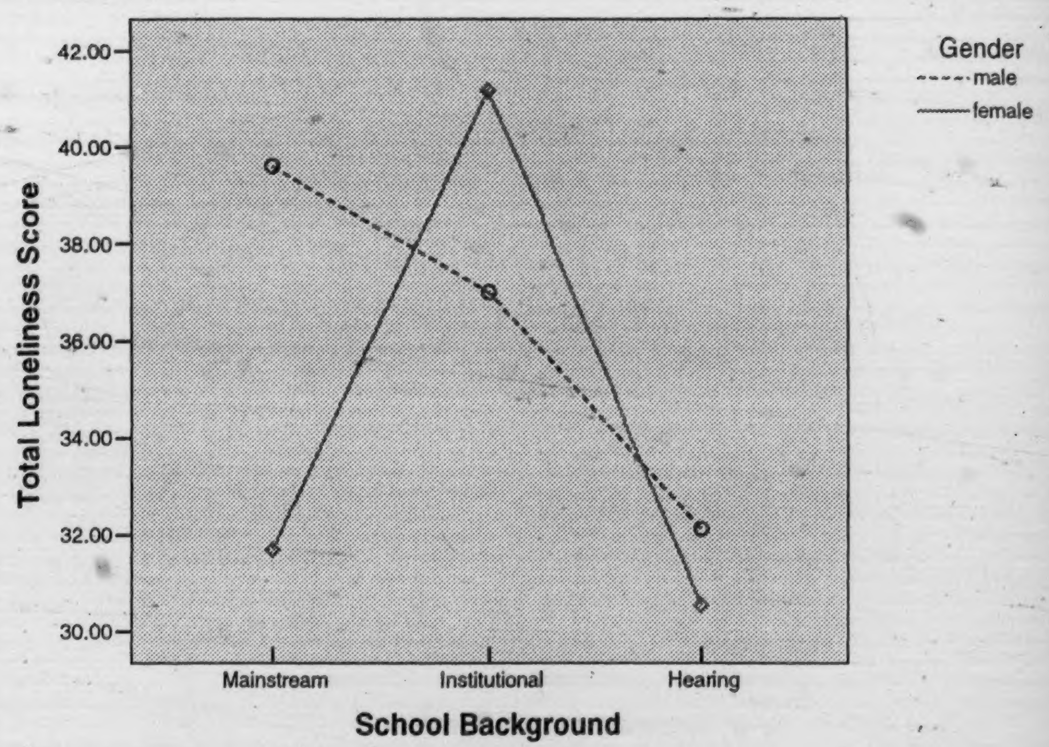

Figure 1. School Type by Gender relationship on UCLA Loneliness Scale.

Figure 1 indicates that Institutional females showed higher loneliness scores than either Hearing or Mainstream female students. These differences were significant (both at $p < .01$). Among the male participants, in contrast, Mainstream students showed higher loneliness scores than Institutional or Hearing students, although only the latter difference was significant. Male mainstream students also showed higher loneliness scores than Mainstream females ($p < .01$).

The School Type by Gender interaction effect approached significance for the PNDLS. This effect was similar to that of the UCLA Scale with Mainstream males reporting higher loneliness scores than Mainstream females, and Institutional females reporting higher loneliness scores than Mainstream and Hearing females.

Summary of Loneliness and Depression Scales

It was found that there were no significant differences in reported loneliness between mainstream and institutional students but both groups reported higher loneliness scores than hearing students. Furthermore, there was mostly no gender effect, but a subtest of PNDLS that measured dyadic friendships indicated that males had higher scores (more lonely in relation to dyadic friendships) than females. Interaction effects showed that mainstream males and institutional females had significantly higher loneliness scores compared to their respective genders in other school groups. Mainstream males also had higher loneliness scores than females. In regards to depression, institutional students had reported higher scores related to depression symptoms compared to those from other school backgrounds. No gender and interaction effects were found for depression.

The next section will address the question of whether or not there are differences in school background related to emotional and adaptive states. The gender and interaction effects will also be investigated. Emotional and adaptive states will be covered via the BASC scores and the Friendship and Satisfaction scales from the General Questionnaire.

Analysis of BASC Composite and Subscale Scores

Descriptive statistics. BASC scores were evaluated for 75 participants out of 86. Eleven participants' BASC scores were discarded due to being over the age limit (over the maximum age of 18), not sufficiently completing the BASC or providing highly invalid

BASC scores. The BASC has a list of indexes to determine a profile's validity. Cases with a cluster of "extreme caution" were rejected in these indexes (e.g., an extremely high V score or a combination of moderate V score and extremely high L "fake good" index and/or extremely high F "fake bad" index). The composites were completed by all 75 participants. Most of the subscales were completed by 75 participants, except for Self-Reliance, which was completed by 74 participants. For each cell within the interaction effect, the number of participants ranged from 7 to 15. Descriptive statistics including means, standard deviations, and ranges of scores by the School Type are presented in Table 3 (composite scores) and Table 4 (subscale scores).

Table 3

Descriptive Statistics of the BASC Composite Scores and F values from Univariate ANOVA

	Mainstream			Institutional			Hearing			
Scales	M	SD	Range	M	SD	Range	M	SD	Range	*F*[a]
PEAD	50.63^{1}	7.33	33 – 61	$43.72^{1,2}$	9.06	29 – 59	50.60^{2}	7.55	34 – 61	8.02***
ESI	48.70	6.88	39 – 64	53.72^{2}	7.98	40 – 71	47.50^{2}	8.00	37 – 63	4.94**

Note. PEAD = Personal Adjustment Composite, ESI = Emotional Symptoms Index Composite.

[a] *Df* for both were (2, 69).

[1] Significant difference between Mainstream and Institutional, $p < .01$.

[2] Significant difference between Institutional and Hearing, ($p < .01$ for PEAD; $p < .05$ for ESI).

$N = 75$ ** $p < .01$ *** $p < .001$

Table 4

Descriptive Statistics of the BASC Subscale Scores and F values from Univariate ANOVA

	Mainstream			Institutional			Hearing			
Scales	M	SD	Min-Max	M	SD	Min-Max	M	SD	Min-Max	*F*^{a}
SOSE	48.96	9.32	38 – 71	53.32	7.99	41 – 68	48.07	8.74	38 – 71	2.96
ANXE	48.78	7.47	36 – 66	48.17	8.17	36 – 66	48.13	9.86	34 – 63	0.05
DEPR	48.93	6.87	43 – 65	54.39	7.72	43 – 71	49.27	8.87	43 – 69	3.28*
SIAD	49.33	9.17	37 – 76	50.28	8.00	37 – 64	50.53	11.01	37 – 78	0.14
REPA	49.19	9.19	26 – 58	47.83	10.21	26 – 58	48.67	10.70	21 – 58	0.02
INPE	52.04^{1}	6.01	37 – 57	43.61^{1,2}	11.42	16 – 57	52.73^{2}	7.01	34 – 57	9.91***
SEST	49.56	9.57	26 – 58	44.89^{2}	10.61	26 – 58	53.43^{2}	6.54	37 – 58	6.64**
SERE	52.89^{1,3}	7.18	36 – 59	43.17^{1}	9.79	29 – 59	46.93^{3}	8.91	29 – 59	9.46***

Note. SOSE = Social Stress, ANXE = Anxiety, DEPR = Depression, SIAD = Sense of Inadequacy, REPA = Relations with Parents, INPE = Interpersonal Relations, SEST = Self-Esteem, SERE = Self-Reliance.

[a] *Df* for all except SERE were (2, 69), for SERE (2, 68)

[1] Significant difference between Mainstream and Institutional, ($p < .01$ for INPE; $p < .001$ for SERE).

[2] Significant difference between Institutional and Hearing, ($p < .01$ for SEST, $p < .001$ for INPE).

[3] Significant difference between Mainstream and Hearing, $p < .05$.

$N = 75$ for all except SERE, $N = 74$ for SERE $^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Outliers. The outliers were adjusted in both BASC composites and subscales by providing the same score plus 1 as the second highest score for the high values or the same score minus 1 from the second lowest score for the low scores (Tabachnick & Fidell, 2000). The outliers were defined as values that were at least two standard deviations away from the group mean. The Personal Adjustment composite score had two outliers in the Hearing and Institutional groups, both at the low end of the distribution. The Emotional Symptoms Index composite score had two outliers in the Hearing group. Both original scores of 71 were adjusted to 63. As explained later in the report, the BASC composite scores were analyzed also without adjusting for the outliers for comparison purposes.

The eight BASC subscales had altogether nine outliers. In the Depression subscale, the highest score in the Mainstream group was adjusted from 74 to 65, and the two highest scores (scores of 80 and 77) in the Hearing group were adjusted to 69. In the Interpersonal Relations subscale, the lowest score in the Mainstream group was adjusted to 37 from 27, while the lowest score in the Hearing group was adjusted to 34 from 20. In the Self-Esteem subscale, the lowest score in the Hearing group was moved up to 37 from 30. In the Self-Reliance subscale, the lowest score in the Mainstream group was adjusted to 36 from 15, while the lowest score in the Institutional group was also adjusted to 29 from 14. In the Hearing group, the lowest score was adjusted to 29 from 23.

Assumption of homogeneity. Box's M test was used to examine the homogeneity of the covariance matrices of the dependent variables (individual BASC composite scores and subscale scores). Box's M was not significant at the .05 level. Next, Levene's test for equality of variances was used to examine the individual variables. There were no violations of equality of variances.

Differences in Reported Emotional and Adaptive States via BASC Composites and Subscales between Students from Different School Types

Multivariate analysis. A MANOVA was conducted to examine the effects of School Type (3) and Gender (2) on the BASC composites and subscales. The results showed a significant main effect of the School Type for the BASC composite scores, $F(4, 136) = 3.99$, $p = .004$. A significant interaction effect was established, $F(4, 136) = 3.11$, $p = .017$. No Gender main effect was found.

Results also indicated a significant main effect of the School Type for the BASC subscale scores, $F(16, 122) = 2.61$, $p = .002$, as well as a significant main effect of Gender, $F(8, 61) = 2.17$, $p = .42$. The School Type by Gender interaction effect approached significance, $F(16, 122) = 1.52$, $p = .10$.

Research questions. The following Univariate ANOVAS will address the research questions related to whether or not there are significant differences between school backgrounds and reported emotional and adaptive states based on the BASC composites and subscales. Furthermore, the questions of there being gender and interaction effects will be addressed.

Effect of school type. Subsequent univariate ANOVAs were conducted on the BASC composite scores and subscale scores. First, significant main effects of the School Type were present for both the Personal Adjustment and Emotional Symptoms Index composites. The lower a person's Personal Adjustment score, the worse that person's personal adjustment is. The higher a person's Emotional Symptoms Index, the worse that person's emotional symptoms are. Post hoc multiple comparisons (Bonferroni test with .05 significance) revealed that Institutional students reported lower Personal Adjustment and higher Emotional Symptoms Index scores than Hearing students (see Table 3). The Institutional students also reported lower Personal Adjustment scores than the Mainstream students. The difference between the Institutional and Mainstream students approached significance for Emotional Symptoms Index.

More univariate ANOVAs were conducted for the composite scores where outliers were not adjusted for these composite scores. There were no differences in the results between the Personal Adjustment composite score between the composite scores adjusted for outliers and those not adjusted for outliers. As for the Emotional Symptoms Index composite, the difference between Institutional and Hearing students approached significance. Moreover, the difference between Institutional and Mainstream students did not even approach significance.

The results of univariate ANOVAs were presented in Table 4. No main effects of School Type were significant for the Anxiety, Sense of Inadequacy, and Relations with Parents subscale scores. Regarding the Social Stress subscale score, the main effect of School Type approached significance. The results showed significant main effects of School Type for Depression, Interpersonal Relations, Self-Esteem, and Self-Reliance subscale scores. Post hoc analyses were conducted on those subscale scores that had significant School Type main effects. Regarding Depression scores, the difference between Institutional students and both Mainstream students and Hearing students approached significance. In terms of Interpersonal Relations, Institutional students reported worse relations than Mainstream and Hearing students. Institutional students reported lower

Self-Esteem scores than Hearing students. Mainstream students reported higher Self-Reliance scores than Hearing and Institutional students.

Effect of gender. No significant main effects of Gender were present for any of the BASC composite and subscale scores.

School type by gender interaction effect. Univariate ANOVA indicated a significant interaction effect for the Personal Adjustment composite score, $F(2, 69) = 6.23$, $p = .003$. Interaction effects were also significant for the following subscale scores: Social Stress, $F(2, 69) = 3.40$, $p = .039$; and, Self-Reliance, $F(2, 68) = 3.90$, $p = .025$. An interaction effect approached significance for the Interpersonal Relations subscale score. Post hoc pair-wise comparisons were conducted to determine significant differences between School Type groups. Figure 2 indicates that Institutional males reported higher Personal Adjustment composite scores than Institutional females. Institutional females also reported lower Personal Adjustment composite scores than either Mainstream or Hearing females. These differences were highly significant (both at $p < .001$).

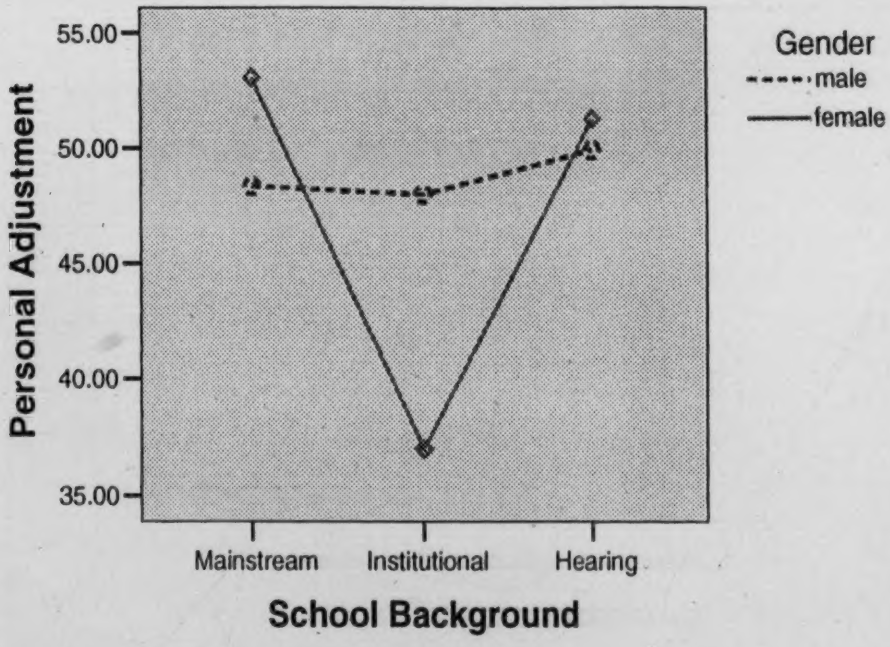

Figure 2. Interaction effect on BASC Personal Adjustment Composite Score.

Figure 3 points out that Institutional females reported higher levels of Social Stress subscale scores than both Mainstream and Hearing females. The difference in reported Social Stress subscale scores between Institutional males and females approached significance.

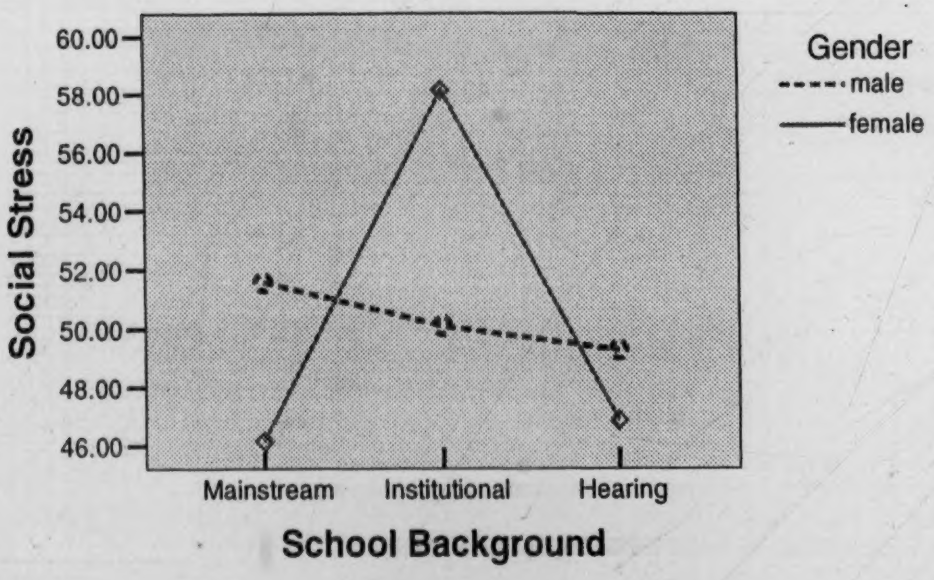

Figure 3. Interaction effect on BASC Social Stress Subscale Score.

Figure 4 reveals that Institutional males had higher Self-Reliance scores than Institutional females. Mainstream females had higher Self-Reliance subscale scores than Hearing and Institutional females.

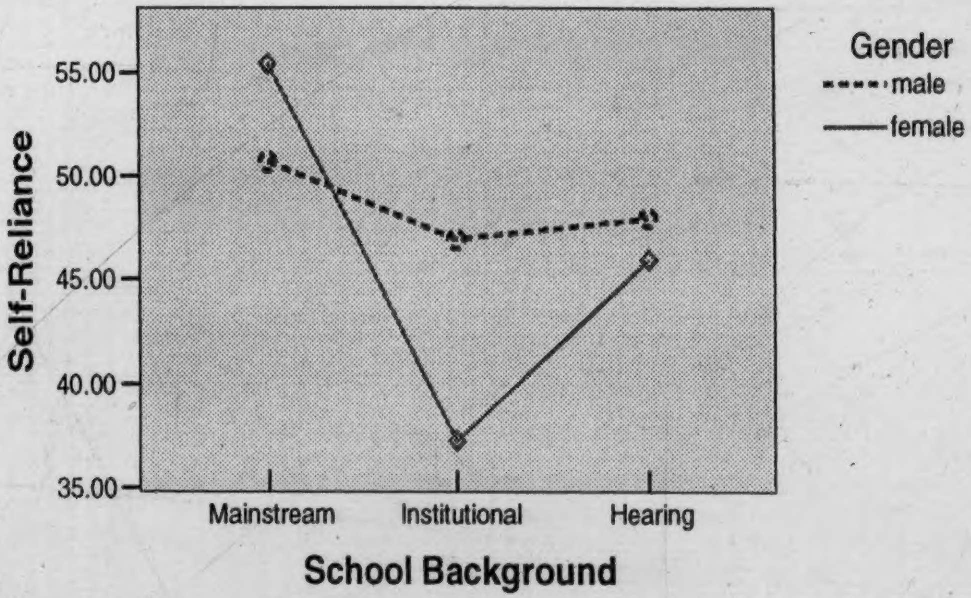

Figure 4. Interaction effect on BASC Self-Reliance Subscale Score.

As seen in Figure 5, an interaction effect approached significance for the Interpersonal Relations subscale scores.

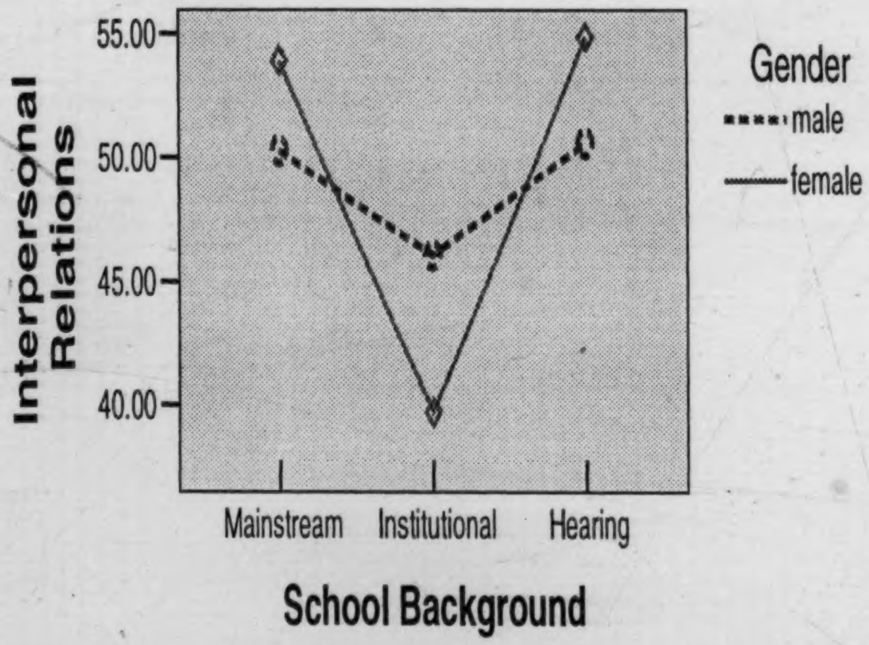

Figure 5. Interaction effect on BASC Interpersonal Relations Subscale Score.

The direction of this interaction effect resembles the directions present in the interactions between the School Type and Gender variables in the PA composite scores and Social Stress subscale scores.

Analysis of Friendship and Satisfaction Scales

Descriptive statistics. Eighty-five participants completed the Friendship and Satisfaction scales. For each cell within the interaction effect, the number of participants ranged from 11 to 16. Descriptive statistics including means, standard deviations, and range of scores by the School Type variable for the Friendship and Satisfaction scales are presented in Table 5 and 6, respectively.

Table 5

Descriptive Statistics of the Friendship Variable and F values from Univariate ANOVA

	Mainstream			Institutional			Hearing			
Scales	M	SD	Min-Max	M	SD	Min-Max	M	SD	Min-Max	F^a
Casual Friendships	$3.29^{1,2}$	0.71	2 – 4	3.73^{1}	0.45	3 – 4	3.68^{2}	0.60	2 – 4	4.15*
Close Friendships	3.82	1.44	1 – 6	4.44	1.50	1 – 6	4.32	1.51	1 – 6	1.21

Note. [a] *Df* for both were (2, 79).
[1] Significant difference between Mainstream and Institutional, $p < .05$.
[2] Significant difference between Mainstream and Hearing, $p < .05$.
$N = 85$ for each Friendship variable * $p < .05$.

Table 6

Descriptive Statistics of the Satisfaction Variables and F values from Univariate ANOVA

	Mainstream			Institutional			Hearing			
Scales	M	SD	Min-Max	M	SD	Min-Max	M	SD	Min-Max	F^a
Social Life	5.11	1.22	2 – 7	5.09	1.44	3 – 7	5.61	1.45	2 – 7	1.32
Family	5.89 [1]	1.07	4 – 7	5.00 [1]	1.39	2 – 7	5.36	1.28	3 – 7	3.78*
School	5.43	1.32	2 – 7	4.96	1.30	3 – 7	5.13	1.14	3 – 7	1.06

Note. Participants rated level of satisfaction with social life, family, and school.

[a] *Df* for all 3 were (2, 79).

[1] Significant difference between Mainstream and Institutional, $p < .05$.

$N = 85$ * $p < .05$.

Outliers. No meaningful outliers were found among both the friendship and satisfaction scales. Therefore, no data was adjusted for these scales.

Assumption of homogeneity. Box's M test was used to examine the homogeneity of the covariance matrices of the dependent variables (Casual Friendships, Close Friendships, Satisfaction with Social Life, Satisfaction with Family Life, Satisfaction with School Life). The Box's M was significant at slightly below .05 for the Friendship scales. However, the results can still be considered valid due to the variances being affected by larger sample sizes (N > 20) and the Box's M not being significant at the .001 level (Tabachnick & Fidell, 2000). Next, Levene's test for equality of the variances was used to examine the individual variables. The Levene's test was significant at the .01 level for the Casual Friends item, meaning that there was a violation of assumption of equality of variances for this variable. However, the larger sample size (N > 20) may have contributed to the conservative nature of these equality tests, as noted by Tabachnick & Fidell (2000), thus, the Friendship scales are still valid as the cut-off rate for significance would be at the .001 level. Regarding the Satisfaction scales, the assumptions were not violated in either Box's M or Levene's test.

Differences in Reported Emotional and Adaptive States via Friendship and Satisfaction Scales between Students from Different School Types

Multivariate analysis. A MANOVA was conducted to examine the effects of School Type (3) and Gender (2) on the quantity of friendships and self-reported satisfaction. The results indicated that the main effect of School Type approached significance for the Friendship variables, $F(4, 156) = 2.01$, $p = .096$. The interaction effect also approached significance, $F(4, 156) = 2.16$, $p = .076$. As for the Satisfaction scales, the results showed that the main effect of School Type approached significance, $F(6, 150) = 1.88$, $p = .088$. However, the results indicated a significant interaction effect, $F(4, 150) = 2.67$, $p = .017$. No gender effects were found for any of the variables.

Research questions. The following Univariate ANOVAS will address the research questions related to whether or not there are significant differences between school backgrounds and reported emotional and adaptive states based on the friendship and satisfaction scales. Furthermore, the questions of there being gender and interaction effects will be addressed.

Effect of school type. Subsequent univariate ANOVAs were conducted for the Friendship and Satisfaction scales (F scores and degrees of freedom shown in Table 5 and 6). There was a significant main effect of School Type for the Casual Friends variable. Post hoc multiple comparison (Bonferroni test with .05 significance) revealed that Institutional and Hearing students were more likely than Mainstream students to say that they had more casual friends (e.g., more likely to say that they had 20 or more casual friends). No main effect of School Type was found for the Close Friends variable.

There was a significant main effect of School Type for the Satisfaction with Family scale. Post hoc multiple comparison indicated that mainstream students reported more satisfaction with their families than did Institution students. No main effects of School Type were found for the Satisfaction with Social Life and Satisfaction with School Life variables.

Effect of gender. No significant main effects of Gender were present for any of the friendship and satisfaction scales.

School type by gender interaction effect. Univariate ANOVAs did not show any interaction effects for any of the Friendship variables. However, there was a significant School Type by Gender interaction for the Satisfaction with Family variable, $F(2, 79) = 6.14, p = .017$. Post-hoc pair-wise comparisons showed numerous differences between the groups. Figure 6 illustrates the directions of the relationships between the School type and Gender variables.

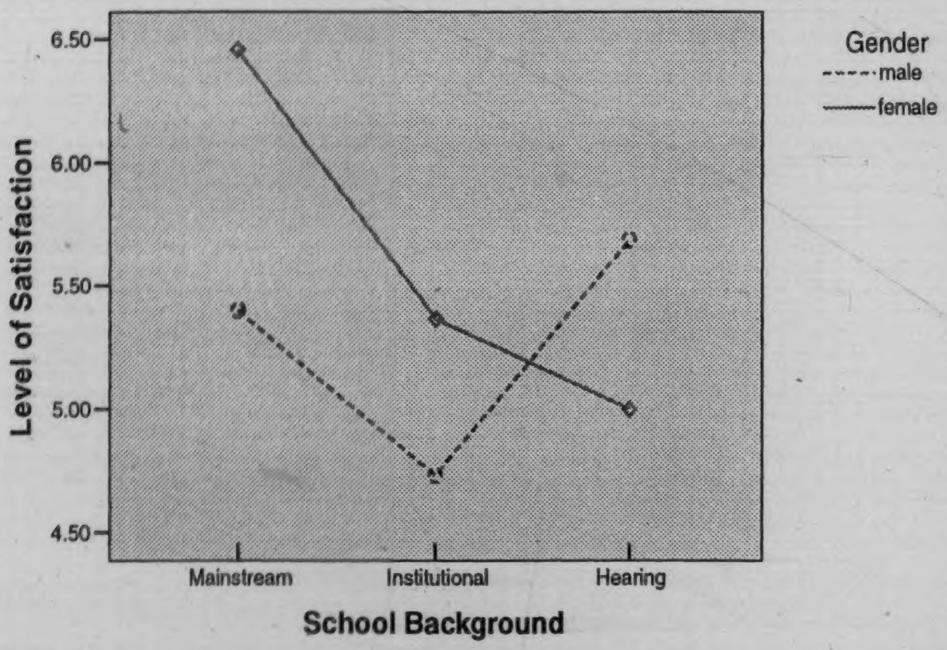

Figure 6. Interaction effect on Satisfaction with Family Relations Score.

Figure 6 indicates that Mainstream females reported more satisfaction with their families than did Mainstream males; and Hearing females (highly significant at $p < .01$). The difference between Mainstream females and Institution females approached significance. No interaction effects were found for the other Satisfaction variables.

Summary of Emotional and Adaptive Scales

Regarding the BASC composites, institutional students had lower personal adjustment index scores (adaptive) than both hearing and mainstream students, as well as having higher emotional symptoms index scores than hearing students. As for the BASC subscales, institutional students had lower interpersonal relations scores compared to mainstream and hearing students as well as having lower self esteem scores compared to hearing students. Mainstream students had higher self-reliance scores than both institutional and hearing students. Regarding friendship levels, mainstream students reported having lower number of casual friends (being less likely to endorse having 20 or more casual friends) than both hearing and institutional students. No significant differences were found regarding the amount of close friends. As for satisfaction scales, no significant differences were found between school groups in terms of satisfaction with social life or with school life. However, mainstream students reported more satisfaction with family life than institutional students.

No significant gender effects were found in any of the emotional or adaptive scales, but a number of interaction effects were found. First, institutional females reported more social stress and lower personal adjustment index scores than institutional males as well as mainstream and hearing females. Institutional males had higher self-reliance scores than institutional females while mainstream females had higher self-reliance scores than institutional and hearing females. Another interaction effect was found in one Satisfaction scale where mainstream females had higher satisfaction with family scores than mainstream males as well as institutional and hearing females.

As with the main loneliness and depression scales, differences were found between school types in relation to relevant emotional and adaptive scales. Moreover, interaction effects by gender and school type were also found.

CHAPTER 5

Discussion

Overview

The discussion section presents a summary of the main findings in this study. This will include the effects of school backgrounds of deaf or hard of hearing students, gender, and the combination of the two on reported loneliness, depression, emotional and adaptive states, level of friendship, and satisfaction. A synopsis of these results will be presented to denote the answers to the main research questions. Possible reasons for the findings will also be examined. As well, the main theories on loneliness will be considered in regards to the current findings. The conclusion will include a summary of the essential points and suggestions for the direction of future research in this area of study. Delimitations and implications of this study will also be covered.

Findings

Loneliness and Depression

Effect of school background. In this study, there is a relationship between different school backgrounds and the levels of experienced loneliness and depression. Deaf/hard of hearing students who attend institutional schools or are mainstreamed in regular high school settings, as well as hearing students, reported different levels of loneliness and depression. Regarding loneliness, there was no difference in reported loneliness between deaf/hard of hearing students from either schooling background. However, both institutional and mainstreamed students reported more loneliness than did hearing students. The difference in reported loneliness, according to the UCLA Loneliness Scale, was more pronounced between institutional students and hearing students than between mainstream students and hearing students. However, the PNDLS did not indicate any significant differences between the schooling groups, although there was a trend towards institutional students reporting higher loneliness scores than hearing students. Regarding reported depression, institutional students reported higher levels of depression via the BDI-II than mainstream students. Furthermore, there was a trend towards institutional students reporting more depression than hearing students.

Effect of gender. Regarding the question of there being any significant differences between males and females in reported loneliness and depression, only the PNDLS scale showed significant differences between the genders. Males were likely to report more experienced loneliness than females. This is consistent with the literature review that indicates that the PNDLS scale is sensitive to gender differences (Hoza et al., 2000). Further analysis of the PNDLS scale indicated that this gender difference is better attributed to a greater absence of a close dyadic friendship rather than a lack of involvement in a social network. The non-difference between the genders for the UCLA Loneliness Scale is consistent with past literature (Berg & Peplau, 1982; Jones, Freeman, & Goswick, 1981; Jackson, Soderlind, & Weiss, 2000). Regarding past studies on gender differences and the depression scales, females consistently reported higher scores than males (Page & Bennesch, 1993; Canals, Blade, Carbajo, & Domench-Llaberia, 2001). In this study, there were no gender differences for the Beck Depression Inventory-2nd Edition scale. However, one study indicated that the higher reported depression scores among females is an artifact caused by inclusion of certain items (e.g., crying, loss of libido) in which females and males frequently differ, whether or not depression is present

(Salokangas, Vaahtera, Pacriev, Sohlman, & Lehtinen, 2002). Therefore, relative similarities in depression scores between males and females in this study are acceptable.

Effect of school background by gender. While differences were found between students from different schooling backgrounds, further analyses revealed interaction effects for experienced loneliness between gender and schooling background. For example, male mainstream students reported more loneliness via the UCLA Loneliness Scale than female mainstream students and male hearing students. Furthermore, using the same scale, female institutional students reported more loneliness than female mainstream and hearing students. While not statistically significant, the PNDLS scale indicated a trend that fell in the same direction as the interaction effects found for the UCLA Loneliness Scale. Therefore, these results indicate that male mainstream and female institutional students may be more vulnerable to experienced loneliness compared to other groups (e.g., female mainstream students, hearing students).

Relationship between loneliness and relevant emotional states. A strong correlation was found in this study between reported depression and loneliness. Here, participants who reported loneliness were likely to also experience depression. This confirms past studies that indicated correlations between depression and loneliness (Lau & Kong, 1999; Anderson & Arnoult, 1985; Young, 1982). Furthermore, there were also strong correlations between loneliness/depression and many other relevant emotional and adaptive states.

Adaptive and Emotional States

Effect of school background. The BASC (Reynolds & Kamphaus, 1992) includes composites and subscales that measure a person's adaptive and perceived emotional states. Among the composites and some subscales, there have been significant differences among the participants from different school backgrounds. This shows that institutional students were more likely than hearing students to have a higher global indicator of emotional disturbance, especially in regards to internalizing problems. Institutional students' depression scores were more severe than those from the other school background groups. This is comparable with the Beck Depression Inventory-II results in this study. Regarding adaptive skills, institutional students were also more likely to have more difficulty in personal adjustments than both hearing and mainstreamed students.

In terms of adaptive states, mainstream students as a whole showed higher self-reliance scores than institutional and hearing students. Mainstream students were less likely than institutional and hearing students to indicate having a large group of casual friends (e.g., twenty or more friends). This may be attributed to mainstream students having more difficulty in accessing a larger number of acquaintances as compared to institutional and hearing students whose communication systems allow for instant social access to their peers in their respective schools. Mainstream students reported more satisfaction with their family life than did institutional students. This is not surprising given that institutional students tend to be at home only on weekends and during vacations instead of everyday as experienced by mainstream students. Moreover, more institutional students use signed language than mainstream students. However, there is a lower proportion of parents who use signed language with their deaf children compared to those who use speech with their deaf children (Moores, 2001). The lower communication compatibility between signing institutional students and their parents may also contribute to a decrease in these students' satisfaction with living at home with their families.

Effect of school background by gender. Overall, the institutional students, especially females, have higher maladaptive and lower adaptability skills. For example, institutional students were found to have higher Emotional Symptoms Index scores than that of hearing students. Further analysis showed that it was specifically female institutional students who had lower personal adjustment scores than the other groups (e.g., male institutional students, female mainstream students, and female hearing students). This pattern of female institutional students showing lower adaptive skills and more emotional trouble than others was supported by analyses of specific subscales (e.g., social stress, interpersonal relations, and self-reliance). However, caution is required when interpreting these results due to the small number of female institutional participants who successfully completed the BASC. While there is a possibility of a wider trend of female institutional students reporting worse personal adjustment and internalizing BASC scores, the number of these females in this study is not sufficient to draw a strong conclusion. There is still a good possibility that the difference between females from various groups may regress to the mean if more institutional females filled out the BASC. However, institutional females had higher loneliness scores on the UCLA Loneliness Scale than other females. A sufficient number of institutional females filled out the UCLA form compared to the BASC. Therefore, it is worth investigating possible reasons why these female institutional students may be experiencing more loneliness and social difficulties. Mainstream females report greater family satisfaction than mainstream males and hearing females. This may suggest a relationship between these mainstream females' strong support systems at home and their positive feelings and coping skills at school. Whereas, mainstream males' lower family life satisfaction may correlate with their lower coping skills at school (e.g., experiencing more loneliness).

Synopsis of Research Questions

1) Regarding loneliness, mainstream and institutional students did not differ in terms of experienced loneliness. However, both types of students reported higher loneliness scores than hearing students.

2) In regards to depression, institutional students reported higher depression scores than mainstream students. There was also a trend showing that institutional students have higher depression scores than hearing students. Mainstream and hearing students showed relatively similar depression scores within the normal range. The average depression score among institutional students fell within the mild depression range.

3) Institutional students had reported higher levels of negative emotional states in certain areas compared to the students from different school backgrounds. There was a trend towards institutional students having more elevated levels of depression compared to mainstream and hearing students. Furthermore, institutional students had a higher rate of negative emotional symptoms (based on a composite of various emotional states) than hearing students.

In terms of adaptability, institutional students reported lower adaptive states such as personal adjustment and interpersonal relations than both hearing and mainstream students in certain areas. Institutional students had lower self-esteem scores than hearing students. Both institutional and hearing students had lower self-reliance scores than mainstream students. Institutional students also reported less satisfaction with family relations than mainstream students. On the other hand, institutional and hearing students were more likely than mainstream students to endorse having many (e.g., over 20) casual friends.

4) This study indicated a strong relationship between reported loneliness and depression. Furthermore, it was also found that there were significant relationships between loneliness, depression, and other relevant emotional or adaptive states. For example, higher levels of loneliness were also associated with higher levels of social stress, with lower self-esteem, with lower personal adjustment skills, and with a lower number of casual friends.

5) Overall, there were no significant differences between males and females in respect to loneliness, depression, and other relevant emotional or adaptive states. The only exception occurred when males endorsed higher loneliness levels than females in terms of dyadic (emotionally close) friendships.

6) While differences were noted in some areas between students from different school backgrounds, some aspects of loneliness, depression, and their related emotional and adaptive states could be better accounted for by the interaction effect between school backgrounds and gender. When considering only the secondary schooling backgrounds of the deaf and hard of hearing students, it appears as if both mainstreamed and institutional students did not differ in their reports of experienced loneliness. After further analysis, it was found that mainstreamed males and institutional females were more likely to report experienced loneliness compared to other groups. Mainstreamed females and institutional males did not differ from their hearing counterparts in terms of reported loneliness.

Patterns of reported emotional and adaptive difficulties indicated that institutional females had worse scores than their gender and school background counterparts.

Specifically, institutional females had relatively more trouble in areas of personal adjustment, social stress, and to a lesser degree, interpersonal relations. Caution is recommended when analyzing the differences found between institutional females and others. This is due to the small number of female institutional participants who successfully completed the BASC. On the other hand, mainstream females had better self-reliance scores, and more satisfaction with family relations than both institutional and hearing females. They also reported more satisfaction with family relations than mainstream males.

Overall, both mainstream and institutional students were more likely to indicate experienced loneliness than hearing students, while institutional students were more likely to endorse symptoms of depression than other groups. Upon closer examination, the groups that seemed more likely than others to report more loneliness and other related emotional and adaptive states were mainstreamed males and institutional females. Further scrutiny is needed to examine possible reasons for the aforementioned findings.

Relevance of Findings

Possible Factors

There are a number of possible factors that underlie the dynamics of loneliness and related emotional and adaptive states among deaf and hard of hearing students. First, mainstream students seem less likely than others to have access to a larger social network. Thus, what could be the effects of isolation on them? Furthermore, why do mainstreamed males seem more vulnerable to loneliness compared to others, while mainstreamed females seem relatively well-adjusted even when compared to their hearing counterparts? Second, regarding institutional students, what are the possible factors behind their elevated symptoms (reported) of depression compared to mainstream and hearing students? Given the higher loneliness and lower adaptive scores among institutional females than others, especially institutional males and mainstream females, what could be the reasons for these findings? Furthermore, there will also be a brief discussion in the next section on how family dynamics may have been factors for both mainstream and institutional students.

Effects of isolation on mainstream students. Scheetz (2001) indicated that lack of adequate communication and socializing can lead to social isolation and loneliness. That has been the experience of many mainstream students who have experienced isolation and loneliness (Stinson & Anita, 1999). However, in this study, it was only the mainstream males who reported elevated loneliness scores compared to hearing students, while mainstream females had positive scores compared to other groups. This partially countered past research (Murphy & Newlon, 1987; Stinson & Anita, 1999) that reported mainstreamed students were significantly lonelier than hearing students. What could be the factors that made these males more vulnerable to experienced loneliness than females? Hoza et al. (2000) indicated that females were more adept than males at developing meaningful friendships. Therefore, this combined with the extra barriers due to possible communication difficulties and increased social isolation mean that mainstream males would be more likely to face more social challenges than mainstream females. The results of this thesis substantiate Martin and Bat-Chava's study (2003) where mainstream females had better coping skills and were better able to interact with hearing peers than mainstream males. Hardy, Bukowski, & Sippola (2002) indicated that adolescent females were more able than males to consider new acquaintances as friends. Furthermore, adolescent males found close friendships with females to be more interpersonally rewarding than those with other males, while females found close friendships with either genders to be equally rewarding (Thomas & Daubman, 2001).

Mainstreamed students in this thesis indicated having fewer acquaintances than institutional and hearing students, so it is possible that males may have been more negatively impacted than females. While not enough is known about how the mainstream students perceived new acquaintances and how they rate friendships with either gender, these are areas that can be explored in further studies. In short, the question remains as to the extent to which mainstream males are affected by the combination of social and communication barriers, and how these barriers exacerbate the relative social difficulties that male students have when compared with females in general. Rokach (2001) indicated that females had better coping skills than males in regards to loneliness. However, there was no indication via the BASC scales that mainstream males have worse coping (adaptive) skills than mainstream females in this study. The discrepancy between mainstream males and females also may be a case of males being more open about their loneliness and reacting more negatively towards the issue than females (Schultz, Jr. & Moore, 1986). There are two alternative hypotheses here: a) male mainstream students being "more honest" about their experienced loneliness, or b) female mainstream students being better able to cope with their social environment.

Depression among institutional students. While the reported loneliness scores varied among the institutional students, especially with the differences between the males and females, the reported depression scores were consistently high among these students compared to mainstream and hearing students. This is further supported by elevated scores in symptoms of emotional difficulties and some personal adjustment troubles (includes coping skills) as per se the BASC scales. Depression is highly correlated with emotional difficulties (Yorbik, Birmaher, Axelson, Williamson, & Ryan, 2004) and poor coping skills (Murberg & Bru, 2005). In spite of available access to signed language communication (ASL) and cultural peers, why would there be elevated levels of reported depressive symptoms among institutional students compared to mainstream students who "supposedly" lack equal access to communication and similar peers? Institutional students tend to have diverse communication, educational, family experiences, and cultural backgrounds, which can lead to various psychosocial experiences among these students (Scheetz, 2001).

Many of the institutional students within this study did not grow up exclusively in institutional schooling since some of them transferred from mainstream schools. Some students did not use ASL at home or preferred other modes of communication (e.g., Signed English). Moreover, students who have transferred to institutional schools from mainstream schools experience more emotional difficulty and social maladjustments after switching schools (Lytle, Feinstein, & Jonas, 1987). In the aforementioned study, students who came from public schools to institutional schools were much more likely to be referred for counseling regarding serious emotional or social difficulties (e.g., crisis intervention, suspensions) than other students who only went to schools for the Deaf. Thus, it is more understandable that some students still may not feel grounded at their schools due to difficulties adjusting to a new environment or culture that is more socially intense. Moreover, they may face discrimination from other peers, or feel excluded in terms of socializing and communication. However, there is another possibility worth investigating. It is reasonable to speculate that in certain cases, some students who have been transferred to institutional schools from mainstream schools already had significant learning, emotional, and/or social difficulties in their former schools. As a result, they may have been transferred to institutional schools due to their previous maladjustments in mainstream settings. Hagboard (1987) found that deaf students in residential schools with the highest level of self-esteem had stayed at their respective schools the longest. This suggests the possibility of the transferred students having lower self-esteem compared to those who stayed at institutional schooling for most or all of their academic lives. Again, more studies are required to examine the compared experiences of students who stayed at institutional schools for the long-term and those who have transferred to more recently institutional schools.

Maladjustments among institutional females. Rokach (2001) indicated that females tend to adjust better to loneliness than males. While this was verified in the case of mainstream students, the opposite effect occurred among institutional students. In this study, institutional females had significantly elevated scores in terms of loneliness and BASC scores related to emotional troubles and low adaptive skills. While the small sample of institutional females for the BASC scores denotes caution in generalizing this to the larger population of institutional females, a larger number of these females still reported higher loneliness scores. While this sample size may be an exception among the general institutional female population, it is still important to explore this as potentially valid by investigating the possible underlying issues. As indicated by researchers such as Lytle et al. (1987) and the school staff for the institutional school in this study, many students who have transferred from mainstream schools tend to experience significant emotional trouble and social difficulties. This study seems to have verified this, especially as most females here have transferred from other schools.

The question remains: why are the females more affected than males here? As with the mainstream students, we can only speculate on the reasons here. One possible reason could be the effect of negative interpersonal relations that these females experienced. While males tend to resort to overt and physical aggression with each other, females usually act out their aggressions via relationships (French, Jansen, & Pidada, 2002). Examples of relational aggression can include gossiping and eliciting peer rejections (Conway, 2005). Females are more likely to internalize negative acts than males (Grills & Ollendick, 2002) and to be more distressed by relational aggression than males (Paquette & Underwood, 1999). Therefore, it is not surprising that adversely affected females would experience elevated levels of loneliness and alienation (Storch & Masia-Warner, 2004). Given that many of these students came from different schools, it is possible that females internalized more than males the impact of negative social experiences, especially as students who are not initially "Deaf-cultured" are likely to find it difficult to fit in schools that promote Deaf Culture norms. Furthermore, if the females in this study experienced relational aggression against them, then this may help explain why they reported worse loneliness and emotional/adjustment scores compared to others. In hearing schools where the student population is usually larger, females would have more opportunities to find more positive peer groups or avoid the negative peer groups as opposed to institutional females who generally have more limited opportunities to transit between different peer groups. Overall, if the high scores by institutional females are not aberrations, then it is possible that they are more negatively affected by difficulties with relations or adaptations to "newer" school environments than their male counterparts.

Difficulties with family relations. Mainstream males and institutional students reported less satisfaction with family relations compared to others. Given that difficulties with family relations are correlated with loneliness (Gaudin Jr. et al, 1993), it is reasonable to speculate that this could factor towards the aforementioned students' elevated loneliness scores. According to Rodda and Groves (1987), social isolation within the family can contribute to increased loneliness. Therefore, the lower family satisfaction among mainstreamed males compared to mainstreamed females may suggest family relations as one possible factor for the mainstream males' higher loneliness scores. Also, the strong family relations that mainstream females experienced may have had highly positive effects on their social and emotional functioning. Families that have strong relations with their deaf or hard of hearing children tend to share the following characteristics: proactive approach with medical and educational people in regards to learning about deafness, willingness to learn how to communicate more efficiently with their child (including learning signed language), and awareness of parental and child's rights and willingness to fight for them (Luckner & Velaski, 2004).

Institutional students tend to be at home only on weekends and during vacations instead of everyday as experienced by mainstream students, so it is not surprising that their family relations have been affected. Moreover, more institutional students use signed language than mainstream students. However, a lower proportion of parents use signed language with their deaf children compared to those who use speech with their deaf children (Moores, 2001). The larger likelihood of lower communication compatibility between signing institutional students and their parents may also contribute to less satisfaction on the part of these students in regards to their family lives.

Females are more vulnerable than males to the effects of family discord (Davies & Windle, 1997). Another possible reason for difficulties faced by institutional females in this study is the impact that problems with family relations have on their emotional and social functioning. Despite institutional males scoring low satisfaction with family relations compared to other groups, their social adjustment scores were still relatively satisfactory. Thus, this is consistent with Davies and Windle's finding (1997) that females are more vulnerable to the impact of family problems than males.

There are numerous speculations for the elevated loneliness and related emotional/adaptive states among the affected groups. It is possible that mainstream males have more difficulty than mainstream females in coping with the relative isolation at their schools. Moreover, institutional females seem to have more difficulty emotionally at school compared to others. This may be due to possible relational difficulties which can impact females more than males, especially in an enclosed environment. Furthermore, many of these females came from other schools, so relational difficulties may have been exacerbated by being "outsiders" in an environment that placed high emphasis on group membership (e.g., Deaf Culture). In addition, this may also explain the elevated levels of depression found in both male and female institutional students as most of them transferred from other schools sometime during their lives. Lack of satisfaction with family relations may also have factored in some of the elevated levels of loneliness, especially among mainstream males and institutional students. While these speculations seem reasonable, the results may also be accounted for by major theories on loneliness.

Loneliness Theories

Which of the three major theories on loneliness seems to best explain the levels of experienced loneliness among the deaf and hard of hearing students from differing school backgrounds in this study? In the following paragraphs, each theory will be evaluated against the findings in this thesis.

Social versus emotional loneliness model. According to Weiss' interactionist view (1973), social isolation and emotional isolation can contribute to loneliness. Social isolation is related to lack of access to social networks that can produce feelings of meaninglessness and marginality. Whereas, emotional isolation pertains to feelings of abandonment and lack of attachment to others, even if there is a social network present. Neuroticism and low self-confidence is highly correlated to high levels of emotional isolation (Cheng & Furham, 2002). Thus, social isolation is more externally induced while emotional isolation is more internally induced. Theoretically, according to the social isolation view, mainstream students would be more likely to experience loneliness than institutional students and hearing students due to relatively limited access to social networks. However, both mainstream and institutional students reported more loneliness than hearing students. The results in this study indicate that experienced loneliness among the students may be better explained by the emotional isolation view than the social isolation view. First, mainstreamed females have similar numbers of friends as mainstreamed males (less than that of institutional and hearing students), but reported less experienced loneliness. Second, institutional females, who had relatively higher numbers of friends than mainstream females in this study, reported lower adaptive skills and more social stress than their male counterparts. Institutional students as a whole also reported lower self-esteem scores than hearing students, which can be inferred as lower self-confidence. These results seem to better fit the emotional isolation view, where a person may experience loneliness and less confidence, in spite of accessible social networks. Furthermore, mainstream females' overall lack of experienced loneliness (in spite of possibly limited social access) indicates that their reported level of healthy confidence and lack of reported neuroticism may have been factors in these findings.

Cognitive model. Peplau and Perlman (1982) produced a cognitive model that purports that loneliness is determined by a person's internal cognitive responses to external events. According to this theory, experienced loneliness stems from a combination of social deficits and a person's perception of unfulfilled social needs. Additionally, a perceived lack of an adequate social network greatly elevates loneliness. Moreover, people who experience depression, low self-esteem (Levin & Stokes, 1986), negative cognitive biases, and lack support systems (Larose et al, 2002) tend to be more vulnerable to perceiving more inadequate social networks, resulting in greater loneliness. Regarding the groups in this study, the cognitive model for loneliness seems more likely to predict the level of experienced loneliness based on a person's emotional and adaptive factors rather than a person's group affiliation (e.g., mainstream vs institutional schooling). According to the relevant BASC scales, institutional students have recorded greater emotional difficulties (as well as more experienced loneliness) than hearing students. This includes depression (also indicated in the Beck Depression Inventory) and self-esteem difficulties. However, institutional female students seem more vulnerable than their male counterparts, especially in terms of social stress and personal adjustment. Therefore, the emotional difficulties experienced by institutional students, especially the females, can make them more vulnerable to being negatively affected by perceived lack of adequate social networking. However, the relative resilience of institutional males compared to institutional females (despite reporting similar levels of depression) suggest that these males may either be more satisfied with their social life or be less emotionally vulnerable. Mainstream males, who reported relatively high levels of experienced loneliness, had lower depression or emotional trouble (via BASC) scores as did male institutional students. It is possible that these males may have been affected by lower access to peers and lower satisfaction with family relations compared to those from other schooling backgrounds. Overall, the institutional females and mainstream males may have felt more impact from a perceived lack of adequate social networking that contributed to their higher levels of reported loneliness.

Existential loneliness model. According to the existential perspective, loneliness stems from a deep sense of alienation/estrangement of self from others due to lack of meaningful connections or lack of intimate bonds, whether they are platonic or not (Mendelson, 1990; Andersson, 1986). Furthermore, self-estrangement can be the consequence of society's rejection of his or her actual self (e.g., being shunned by family or culture; having one's idealized image being accepted by others at expense of one's actual self). Davies (1995) indicated that emotional estrangement shows a theoretical relationship between Weiss's emotional isolation (1973) and experienced existential loneliness. How could existential loneliness explain the findings regarding the students in this study? At first glance, it may seem counterintuitive for the institutional students, especially females, to endorse relatively high levels of experienced loneliness (compared to hearing students) and depression (compared to mainstream students). However, these institutional students (mainly the females) indicated difficulties with personal adjustment combined with lower self-esteem and higher loneliness scores, which can be reasonably inferred as correlating with feelings of alienation and estrangement. Given that most of the institutional students in this study had transferred from other schools, it is possible that they may have faced difficulties with fitting in socially or culturally. This can exacerbate a person's sense of estrangement due to the alienation from their own culture and sense of self.

Identity loss or confusion can negatively affect a person's sense of self. While this cannot be verified in this study, it is possible that these students who transferred from other schools may have found themselves unable or struggling to fit into the Deaf Culture, causing further alienation and estrangement. It has been noted that deaf people who are immersed in Deaf Cultured social systems, but do not fit in for one reason or another, can find themselves alienated (Harris, 1995; Nagase, 1995). Depending on the type of Deaf community, certain Deaf individuals may find themselves not being well-accepted by their Deaf peers for various reasons such as not being fluent enough in ASL, wearing hearing aids, speaking on the telephone with ease, being "too comfortable" in the hearing world, etc. Basically, one major reason for rejection within Deaf Cultured deaf communities is the perceived non-conformity to "essential Deaf characteristics", which then can result in the rejected Deaf people being more alienated. Interestingly, similar dynamics have found among different disabled groups where certain disabled individuals feel alienated from their fellow disabled peers due to not fitting into the definitions of "disability" as defined by their peers, especially those who are considered leaders (French, 1993).

As for the mainstream males, it is also possible that their relative dissatisfaction with family relations and relative lack of access to social networking may have contributed to their elevated feelings of estrangement. Given that adolescent females tend to be more successful in developing intimate friendships than males (Hussong, 2000), it is possible that communication barriers faced by mainstream males may have further hindered their access to meaningful friendships and social networking, resulting in more loneliness. As for the mainstream females, they may have had sufficient access than males to more satisfying friendships. Therefore, this possible lack of access to intimate friendships may have contributed to more experiences of loneliness and a sense of estrangement for mainstream males than for mainstream females. Overall, existential loneliness is more difficult to quantify compared to other aspects of loneliness, and would require more in depth analysis of personal experiences (e.g., qualitative research). For example, a person conducting qualitative research would interview a certain number of deaf or hard of hearing persons from mainstream or institutional backgrounds. They would discuss their social experiences and how it impacts their personal states. Primary themes could then be established to determine common experiences and states of being.

Inferences. At this point, it is not possible to determine which model of loneliness best explains the results in this study. Each of the three major models can offer at least some justification for the experiences of loneliness discussed in the previous paragraphs. However, emotional isolation is likely a better rationale than social isolation for the experiences of loneliness among some of the mainstream and institutional students. Given the mixed gender results, it is more likely that internal responses to their social environment contributed to higher levels of loneliness and some other difficulties (e.g., more loneliness among mainstream males, worse personal adjustment among institutional females). While emotional loneliness is strongly related to experienced estrangement or existential loneliness (Andersson, 1986), it is premature to determine how much existential loneliness these participants have experienced. The likelihood of internal states influencing experienced loneliness here is also consistent with the cognitive model of loneliness by Peplau and Perlman (1982). Elevated scores of depression, low self-esteem, and interpersonal difficulties as well as decreased scores in number of casual friends and satisfaction with family are correlated (but not for every affected group) with elevated loneliness scores. Thus, these states may be possible internal predisposing factors that contribute to increased loneliness. However, more research is needed to truly determine the cognitive perceptions of these participants that can be clearly attributed to loneliness. For example, Davies (1995) suggested that lonely people had low or diffuse concepts of themselves, as they are critical to the development of a strong sense of self and a sense of belonging in society. In future studies, it will be interesting to determine the level of self-perceptions or identity among mainstream and institutional students so as to further determine the roots of loneliness.

There are various loneliness hypotheses that can reasonably explain the results (e.g., elevated depression or decreased adaptive scores) found in this thesis. However, there are other factors that may contribute to the students' documented experiences.

Alternative Factors

Linguistic skills, sense of identity, and emotional regulation in adolescents are possible factors in the students' description of their own experiences. These three issues have been investigated and found to have significant effects on deaf or hard of hearing people's emotional and social development.

Linguistic background and skills. Lower language skills are related to lower socialization and/or higher incidence of behaviour problems (Stansbury & Zimmermann, 1999). Some deaf children and adolescents lack age-appropriate linguistic competence, which increase the risk of negative outcomes such as higher rates of social maladaptions, psychological difficulties, and low academic achievement (Marschark, 1993, 1997). Given that females tend to have stronger verbal skills than males (Weiss, Kemmler, Deisenhammer, Fleishhacker, & Delazer, 2003), it is possible that stronger linguistic skills among mainstreamed females compared to their male counterparts in this study may have been a possible explanation for differences in their experiences of loneliness.

Another aspect of linguistics involves the difference between prelingually deaf and postlingually deaf people. People are defined as being postlingually deaf if they became deaf at the age of three or later, since they have been exposed to spoken language (Schirmer, 2001). De Graff and Bilj (2002) found that while postlingually deaf people tended to have higher educational achievement and reading ability, prelingually deaf people tended to have a better quality of life and a more positive self-image. It would be interesting to know if there was a difference between these two groups in this thesis. The linguistic abilities and backgrounds of the participants in this thesis were not measured, but examining the relationship between loneliness, maladaption, and linguistic abilities would be worthwhile.

While language skills are crucial in a person's social development, mode of communication does not necessarily relate to a deaf and hard of hearing person's social ability. Luckner and Muir (2001) found no difference between primary communication modes (e.g., signed language or speech) in predicting successful deaf or hard of hearing students in mainstream settings. Key factors for success included self-determination, good reading skills, family involvement, high expectations by support system, communication support, and self-advocacy skills. Antia and Kreimeyer (2003) indicated that intervention via social skills training or teaching linguistic skills (e.g., signed language instruction to hearing peers, teaching deaf or hard of hearing students social communication tips) were successful in increasing socialization among deaf and hard of hearing students, but less so between them and their hearing peers. However, success in building social ties between hearing and deaf or hard of hearing students was a result of increased familiarity with each other through intervention rather than the technique of intervention.

Emotional regulation in adolescents. Adolescents have been found to experience more frequent and intense emotions than younger and older people, which can lead to increased risk for behavioural and affective disorders (Silk, Steinberg, Morris, 2003). Spear (2000) indicated that developmental transformations in the adolescent brain can negatively affect some adolescents predisposed to maladaptive behaviour and emotional states. Adolescents who experience negative affective states such as depression tend to lack the sufficient strategies (e.g. coping skills, problem solving, cognitive restructuring) to reduce the impact of these emotional states (Dodge & Garber, 1991). Silk et al. (2003) found that adolescents who had more deficits than some of their peers in regulating their emotions, especially negative ones, were more at risk for mental health problems such as depression or volatile behaviour stemming from emotional lability. Overall, adolescents tend to be more prone to intense emotional experiences, partially due to neurological changes that they are undergoing. Furthermore, adolescents who lack sufficient strategies to cope with their intensifying emotions can be at risk for developing emotional or mental health problems.

Given that adolescents tend to experience more intense emotions than others, would they be more likely to experience loneliness than others? Brage and Meredith (1993) found that adolescents were more at risk for experiencing loneliness than other age groups. Given that adolescents tend to experience emotions more intensely than other age groups, it is not surprising that adolescents also tend to experience loneliness more intensely than other age groups as well, even more than the elderly (Woodward, 1988). Furthermore, older adolescents were more likely to experience more loneliness than younger adolescents, possibly due to increased social isolation (Brage & Meredith, 1993).

Since adolescents are more likely to experience more intense emotions, especially negative ones, it would be important to consider that participants in this study may have been influenced by their adolescent nature. For example, some adolescents lack sufficient coping skills or other proactive strategies to offset the impact of their negative emotions, especially if they are more vulnerable or lack some resources (e.g. family support, healthy peer network). Moreover, some are more negatively affected by how their brain develops during adolescence (e.g. more depression or less impulse control). In this study, it cannot be directly ascertained how the participants' adolescent nature may have affected their responses, but some possibilities can be inferred. First, on average in this study, institutional students are approximately one year older than students from other groups. Furthermore, institutional females are approximately one year older on average than institutional males, as well as these females being around two years older on average than females from other groups. Given that older adolescents tend to experience loneliness and related states more intensely than younger adolescents (Brage & Meredith, 1993), the possibility of age as a factor in institutional students' reported scores cannot be discounted. Second, mainstream males and institutional females had higher loneliness scores compared to other groups in this study. It is possible that they had lacked sufficient tools (e.g. family or peer support, cognitive restructuring) to cope with their intense emotions. Silk et al. (2003) emphasized the importance of healthy emotional regulation skills and the need for specialized intervention for adolescents at risk. It would be worth investigating if intervention strategies such as cognitive restructuring and improved coping skills (Dodge & Garber, 1991) to help adolescents better cope and regulate their emotions would be efficient for deaf and hard of hearing adolescents who are at risk.

Identity affiliation with group. Identity affiliation and a person's psychological or emotional state can be related. Maxwell-McCaw (2001) indicated that people who were culturally Deaf and adapted well to both Deaf and hearing communities had higher self-esteem and life satisfaction than those who were more affiliated with the hearing community. Furthermore, deaf people who did not identify with either hearing or Deaf communities tended to have the lowest adaptive skills (Bat-Chava, 2000). Thus, deaf or hard of hearing adolescents who lack a sense of community or identity ought to be more lonely or emotionally maladjusted than those who have a stronger sense of community or identity. For instance, did the institutional students who have a stronger affiliation with the Deaf Culture in this thesis show lower rates of loneliness than those with less affiliation? Hence, while schooling background is a significant factor, more studies are needed to determine the significance of each factor (e.g., identity or language base vs. school background) in their relationship to student's emotional and social states. As Calderon and Greenberg (2003) indicated, no one factor can determine the level of a deaf or hard of hearing person's psychological and social well-being. A more comprehensive model involving multiple factors (e.g., schooling type, linguistic background, identity, family background, personality makeup, etc.) is required for better insight.

Conclusion

Based on this study, there are mixed results in differences between mainstream and institutional students as a whole when it comes to reports of experienced loneliness and depression along with difficulties in other areas related to emotional and social adjustments. When focusing only on the different school backgrounds, mainstream and institutional students both reported higher experienced loneliness than hearing students. Institutional students reported more symptoms of depression than the others. However, after further investigation, there are more contributing factors to experienced loneliness and their relevant emotional and adaptive states than just the differences in the schooling experiences of deaf and hard of hearing students. Overall, the most vulnerable groups in this study were the mainstream males and institutional females. Except for reported symptoms of depression, institutional males did not differ from hearing controls. Mainstream females not only showed relatively normal levels of reported depression or loneliness, they even showed better adaptive scores in terms of family relations and self-reliance. All of this underlies the complex dynamics experienced by deaf and hard of hearing students from differing school backgrounds. While the results cannot, at this point, be confined to one specific model or explanation of loneliness, it is reasonable to indicate that internal responses to environmental cues (e.g., communication barriers; lack of or limited access to a social network; adjustment to new school settings) can be major factors in loneliness and related emotional problems. This suggestion fits Weiss' emotional isolation (1973) as well as Peplau and Perlman's (1982) cognitive model where the discrepancy between desired and actual social experiences can contribute to loneliness. Existential loneliness or sense of alienation and self-estrangement from society can offer insight here as well. Mainstreamed males and institutional females may have been more emotionally vulnerable than their counterparts to the perceived lack of adequate social networking opportunities or number of close friendships. As previously mentioned in this thesis, there are possible reasons behind this, but they are still speculative.

The scenario is too complex to simply declare which type of schooling decreases the likelihood of loneliness, depression, and other emotional or social maladjustments for deaf and hard of hearing students. What has been indicated in this study is that both mainstream and institutional students, depending on gender, are more likely to report higher levels of loneliness than hearing students. It seems that different types of schooling affect these deaf and hard of hearing students differently according to gender. At the same time, it would be far too simplistic and premature to say that males benefit socially at institutional schools while females do so at mainstream schools. There are too many variables involved. What is more important is to identify those who would be at risk for social and emotional difficulties, investigate underlying reasons for these difficulties, and intervene to support their social and emotional development.

The various results also exemplify the complexity of the school systems themselves. Some mainstream schools have full services while others have partial services for both educational and social development. Therefore, it would be useful to study the differences between mainstream students who receive no services, partial services, or full services. Students in institutional schools come from a wide variety of backgrounds, and have different needs. It would be helpful to examine the possible differences between the institutional students who fit the typical "Deaf Culture" experience and those who did not. The likely criteria for those who grew up in a typical "Deaf Culture" would include those who went to an institutional school for all of their schooling years, who primarily use their native signed language at school and at home, and identify themselves as "Deaf". Overall, to establish a more comprehensive view of loneliness among mainstream and institutional students, more studies are needed to account for different variables. Nevertheless, it has been determined that the experience of loneliness can be significant among deaf and hard of hearing students, regardless of school background. Yet, it is important to note that experiences of loneliness may also vary across other types of groups (e.g., gender).

People who are lonely and/or depressed are more at risk for poorer school performances, maladaptive functioning, difficulty with intimacy, problems with life directions, and decreased life quality (McWhirter et al, 2002; Rokach, 2004). Therefore, it is critical for people involved with mainstreamed or institutional students to address the experience and impact of loneliness and depression on these deaf and hard of hearing people. While loneliness and depression are significant issues in the general population, the unique needs and experiences (e.g., level of hearing loss, communication and socialization) of deaf and hard of hearing people call for further attention. The combination of hearing loss and lack of social support for at least some of the hard of hearing and deaf people can intensify the effects of isolation and loneliness. Intervention is essential here, but it may need to be long-term instead of short-term. For instance, intervention via social skill training or linguistic/cultural exposure was implemented in various cases to facilitate more positive social experiences for deaf and hard of hearing students with hearing students (Antia & Kreimeyer, 2003). However, long-term intervention was shown to be much more successful than short-term intervention. Secondary school students are soon to become adults. Attention and supportive experiences are necessary to minimize or prevent the harmful effects of loneliness on their adult lives, especially as support systems are less available after leaving school.

Limitations and Delimitations

Adequate sampling. One difficulty faced in this study was finding enough participants. To be able to have sound statistical results for the main effect, at least 25 to 30 participants were needed for each schooling background group. It would have been preferable to have at least 25 to 30 for each gender per schooling background group. Due to the difficulty in obtaining a large number of participants in studies of educationally significant hearing losses, this was not possible. Therefore, the study focused on obtaining approximately 30 participants for each group per school background type. There were sufficient participants to satisfy the minimum number criteria (at least 25) for both main effects. However, for the interaction effect, approximately 10 to 16 participants were found for most cells. Caution must be exercised in interpreting and discussing the interaction effects, but they do offer some meaningful perspectives. There was difficulty in finding enough deaf and hard of hearing students in both school conditions due to the limited population as well as obtaining consent from sufficient number of participants and/or their parents. As a result, it was not possible to divide hard of hearing and deaf students into their separate cells. Interestingly enough, 78 percent of students in institutional schools (21/27) labelled themselves as "deaf", while 79 percent of students in mainstream schools (22/28) labelled themselves as "hard of hearing". The distinction in self-labeling of hearing condition or identity between the majority of students from both types of schools indicates that it is possible to make judgements in evaluating differences between deaf and hard of hearing students. However, there are not enough students from the minority groups (e.g., those who label themselves deaf in mainstream schools, and those who label themselves hard of hearing in institutional schools) to compare the deaf and hard of hearing students within each school type group.

Another limitation could be the lack of homogeneity among the deaf and hard of hearing students in each group. For example, students from the institutional school have varied backgrounds. The initial focus was only on those students who were native signers and fully educated in institutional schooling in Canada, preferably only at one institutional school that had many students. Due to the difficulty in recruiting sufficient number of students, the following types of students had to be included: those who had an oral background, those who used to be mainstreamed in elementary schools, and those who transferred from other institutional schools. Therefore, when evaluating the results, it is important to be mindful of the possible impact these different backgrounds might have on these students.

Selective processing. An important possibility to consider is the process of determining how deaf or hard of hearing students are placed in specific school settings (M. Rodda, personal communication, January 15, 2006). Students are not randomly assigned to either mainstream or institutional schools. There are three factors that may influence the process of selecting a school for a deaf or hard of hearing child: behavioural adjustment, academic ability, and oral skills. Students who are less well-adjusted, less academically successful and/or have less oral skills are more likely to be placed in special schooling, including institutional schools, rather than be mainstreamed in regular school settings. It can also happen that some students who struggle in mainstream settings for various reasons (e.g., difficulty keeping up with academic pace, severe communication barriers, etc.) may subsequently be transferred to institutional schools. Therefore, these factors may lead to significant qualitative differences between some from the mainstream and institutional groups, meaning that schooling type may not be sufficient a factor in itself in predicting a child's psychological and social well-being.

Modified definitions of institutional and mainstream schooling. As indicated in the glossary, institutional schools as defined in this study include deaf or hard of hearing students who attend special schools designated for these students with full services and communication access. In past years, the definition and distinction between institutional and mainstream schooling was very clear and consistent. Typically in the past, institutional schools were segregated where deaf children attended and stayed overnight at their residents. Strong linguistic (signed language) and community bonds (Deaf Culture) developed between people who attended these schools. On the other hand, mainstreamed students tended to be the only one or among the few who attended their own regular schools, but they received no services or received only auditory accommodations (oral education). Currently, the educational setting for deaf and hard of hearing students is more complex. For example, it is becoming more common for institutional students to attend only the day programs without staying overnight. Mainstreaming programs provide a wider variety of services including signed language interpreting. An alternative schooling program for deaf and hard of hearing students has become more prominent in recent years: congregated schooling. Typically, a group of deaf and hard of hearing students is contained in a special program within a regular school (e.g., 20 deaf and hard of hearing students among 1000 students). Most of them usually attend special classes together but also partake in certain regular classes with other hearing students. In my study, a few students who may be defined as being part of a congregated program were included in the mainstream sample. Given the complex and various schooling experiences among deaf and hard of hearing students, it would be useful to compare the experiences of students from distinct backgrounds (e.g., mainstream vs congregated vs residential vs day program at residential school and students with consistent school backgrounds vs students who have transferred to different school types).

Future studies on loneliness and the social/emotional difficulties faced by students from different schooling backgrounds and/or identities ought to be conducted with larger sized samples. Research in Canadian schools may not be adequate given the relatively small population of students in institutional schools. The institutional school used in this study was considered to have one of the largest deaf student populations in Canada, but sampling was still very difficult. Subsequent research ought to be held in jurisdictions where the Deaf and hard of hearing population is larger than in Canada. The USA would be a good choice, because the similarity of schooling experiences in both Canada and the USA means that results should be generalized between the two countries. Likewise, studies on students from various types of mainstream or congregated programming should occur in the USA.

Reading skills. Steps have been taken to ensure that students from both school backgrounds were able to understand the written materials. Someone was present during each session to clarify key points and to assist students who had questions about the items in the questionnaires. In institutional schools, videotaped versions of the questionnaires were provided so students had the opportunity to understand the materials in their native language. Some students chose to watch some or none of the videotapes, as they indicated to me that they felt confident in understanding the materials (but some asked occasional questions for clarification). Even if all watched the tapes in ASL, this was no guarantee that all participants understood and correctly perceived the statements. Interestingly, most of the requests for clarifications from the institutional students were also echoed by mainstream and hearing students (e.g., what does "superficial" mean?). Given that special care was conducted to ensure equal understanding of the materials throughout the groups, it is reasonable to conclude that this study is valid (especially as most participants were considered to have understood properly as indicated by the BASC validity scores).

In-depth analysis of self-concepts and other internal states. Deeper insight into possible causes of loneliness and emotional/social problems among students could not be confirmed or further substantiated. The assessments did not provide insights on variables such as self-concept, more precise and comprehensive information on their family and social lives, identity formation and maintenance, and other qualitative data. Future research could use findings from this study to delve deeper into the effects of different schooling and personal history on the psychosocial development of deaf and hard of hearing adolescents and adults.

Studying the pattern and cause of loneliness among deaf and hard-of-hearing people is a difficult area to research. This study focuses of one study on the relationship between experiences of loneliness and hearing status and gender as well as between schooling type among deaf and hard of hearing people. These are important variables that can help us better recognize the amount of loneliness among these individuals, and can be applied to other research work related to loneliness among deaf and hard of hearing people from other age ranges or backgrounds. This study offers some insight into the phenomena of loneliness and depression among deaf and hard of hearing people. However, more research is required as there have been limited investigations in this essential area of study. Further information can lead to successful intervention strategies that can accommodate the needs of deaf and hard of hearing people according to their unique and complex experiences.

Implications

This study addresses isolation and loneliness as it pertains to deaf and hard of hearing people from various backgrounds. It also considers emotional or adjustment factors that are related to experiences of loneliness. Research such as this is important as it can lead to helpful suggestions on how to lessen the effects of loneliness and how to set up systems that can prevent isolation. Others will be able to use the findings of this study to develop research on educational/vocational/social programs that will benefit the psychosocial needs and emotional growth of deaf and hard of hearing adolescents and adults so that they may feel less alienation from society (e.g., Deaf, hearing, or both). The goal is to better understand how to make mainstreaming for deaf/hard of hearing people more beneficial psychosocially and how to help residential students feel less estranged from their families and the hearing world, while retaining their Deaf Culture.

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APPENDIX

GENERAL INFORMATION

1. GENDER (Circle one)

Male Female

2. LOCATION

a) Where do you live? (Circle one)

City Small Town Country

b) Where did you grow up? (Circle one)

City Small Town Country

3. AGE

How old are you? _____ Date of birth? ____________

4. EXCEPTIONAL STATUS

a) Circle the ones below that fit your current status

Blind Deaf Hard of Hearing Paraplegic

Quadraplegic Cerebral Palsy Learning Disability

Giftedness Mentally Challenged ADHD

None of the Above

b) If any of the above applied to you, what kind of elementary school did you go to? (Check any and write down how many years)

Institutional School (___) ___Years

Congregated School (e.g., mixture of deaf and hearing students: 5 or more deaf/hoh students) (___) ___Years

Mainstream School with Services Provided (e.g., there are 1 to 5 students at a regular school with your status but services are provided such as ramps for paraplegics or interpreters for deaf students) (___) ___Years

Mainstream School with No Services Provided (e.g., there are 1 to 5 students at a regular school with your status but with no special services to meet your exceptional needs) (___) ___Years

c) If any of question 4a) applied to you, what kind of high school are you in? (Check any and write down how many years)

Institutional School (___) ___Years

Congregated School (e.g., mixture of deaf and hearing students: 5 or more deaf/hoh students) (___) ___Years

Mainstream School with Services Provided (e.g., there are 1 to 5 students at a regular school with your status but services are provided such as ramps for paraplegics or interpreters for deaf students) (___) ___Years

Mainstream School with No Services Provided (e.g., there are 1 to 5 students at a regular school with your status but with no special services to meet your exceptional needs) (___) ___Years

5. FAMILY MEMBERS

Which family members do you have now? (Check any)

Father ___ Mother ___ Grandfather ___ Grandmother ___

Brother (how many?___) Sister (how many?___)

Son (how many?___) Daughter (how many?___)

6. FIRST LANGUAGE

What is your first language? (Circle one)

English French Spanish ASL Italian

Portuguese Arab Hebrew German

Russian Ukrainian Chinese Japanese

Signed English Hindu Polish

Other? ___________

7. MODE OF COMMUNICATION AT HOME

What language do you primarily use at home? (Circle one)

English French Spanish ASL Italian
Portuguese Arab Hebrew German
Russian Ukrainian Chinese Japanese
Signed English Hindu Polish
Other? __________

8. MODE OF COMMUNICATION AT SCHOOL

What language do you primarily use at school?

English French Spanish ASL Italian
Portuguese Arab Hebrew German
Russian Ukrainian Chinese Japanese
Signed English Hindu Polish
Other? __________

9. PREFERRED MODE OF COMMUNICATION

If you had a choice, which language would you use first?

English French Spanish ASL Italian
Portuguese Arab Hebrew German
Russian Ukrainian Chinese Japanese
Signed English Hindu Polish
Other? __________

10. EDUCATION

What grade are you in?

9 10 11 12 OAC

11. FRIENDSHIP

a) How many casual friends do you have? (Circle one)

Many (20+) Some(5-19) A few(1-4) None

b) How many close friends do you have? (Circle one)

More than 6 5 4 3 2 1 None

12. RELATIONSHIP STATUS

a) What is your relationship status (Circle one)

Never Dated Single Now But has Dated Before

Casually Dating In Serious Relationship

b) If you have dated, how many people have you dated before?

1 2 3 4 5 or more

c) If you are in a relationship, how happy are you with it?

1	2	3	4	5	6	7
Not Happy		Slightly Happy		Mostly Happy		Very Happy

13. SATISFACTION WITH SOCIAL LIFE

How satisfied are you with your social life?

1	2	3	4	5	6	7
Not Satisfied		Slightly Satisfied		Mostly Satisfied		Very Satisfied

14. SATISFACTION WITH FAMILY RELATIONS

How satisfied are you with your relationship with your family?

1	2	3	4	5	6	7
Not Satisfied		Slightly Satisfied		Mostly Satisfied		Very Satisfied

15. SATISFACTION WITH SCHOOL

How satisfied are you with your school-life?

1	2	3	4	5	6	7
Not Satisfied		Slightly Satisfied		Mostly Satisfied		Very Satisfied

16. SOURCE OF SUPPORT

In the space below, please list who those you consider to be your source of support.

17. INTERESTS

In the space below, please list your interests/hobbies.